
THE FISHES OF KENTUCKY AND TENNESSEE: A DISTRIBUTIONAL CATALOGUE OF THE KNOWN SPECIES



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INTRODUCTION.

While engaged in studying the considerable collection of fishes obtained by the writer in east Tennessee in 1893, in connection with investigations carried on in that region for the United States Bureau of Fisheries (then United States Fish Commission), it was necessary to consult all the available literature pertaining to the ichthyology not only of that region but of the entire Mississippi drainage. This naturally led to the accumulation of a large number of notes and memoranda relating to the fishes of the region, particularly those of the Tennessee and Cumberland Rivers. In order that these data and the labor incident to their preparation may not be lost, it seems worth while to assemble and put them in a form whereby they may be available for others who may study the fishes of Kentucky and Tennessee. It is believed they will prove of particular value to those interested in questions of geographic distribution.

With this thought in mind, an attempt has been made in the present paper to summarize our knowledge of the fish faunas of the Tennessee and Cumberland River Basins and of the other waters in the States of Kentucky and Tennessee.

A brief historical résumé of the systematic and faunistic work which has been done on the fishes of this region is given.

So far as the writer has been able to discover from an examination of available literature, the first man to collect and study the fishes of Kentucky and Tennessee was that enthusiastic, albeit somewhat eccentric naturalist, Constantine Samuel Rafinesque.

This indefatigable student of nature came to Lexington, Ky., in 1818, where, through the good offices of his friend John D. Clifford, he secured the professorship of botany and natural history in Transylvania University, located at Lexington.

Here, as Prof. Call has well said, Rafinesque "was in a veritable new world; the plants and animals had never been either collected or studied; the hand of the husbandman had not yet destroyed much of the primitive forest; untold wealth of natural forms appealed to Rafinesque, the Nature-lover, as they have rarely appealed to any man. To-day even, in the face of the check which specialization furnishes to scientific investigators, few men could withstand this lavish display of new and unknown forms! They were on every hand, in every glade and mead, in every brook and spring, the creeks, the rivers, the very rocks themselves. Like a schoolboy, Rafinesque searched and found, studied, described, drew, sent abroad, the wonderful forms in which he, almost alone, now reveled." Rafinesque remained at Lexington eight years. In the early fall of 1825, upon returning to Lexington from one of his long collecting trips, Rafinesque found that, during his absence, his effects had been removed from his room

in the college and stored in the garret, and the room which he had formerly occupied turned over to another professor. This was an indignity which our sensitive naturalist could not endure, and he at once left Lexington, as he says, "with anathemas on the university and curses on the president, both of which were speedily fulfilled, for the university building burned down within six months and the president died within a year."

His stay at Lexington was long enough, however, to enable him to collect, study, and describe many of the animals and plants of the region. His first paper on the fishes, containing descriptions of 26 new species from the Ohio, appeared in 1818 in the *American Monthly Magazine and Critical Review*. This was followed in the same year by a second paper in the same magazine, in which he listed 22 species from the Ohio, and that by a third paper describing three new genera and species of fishes, which appeared in the *Journal of the Academy of Natural Sciences of Philadelphia* (vol. 1, 1818). Then followed another short article in the *American Monthly Magazine and Critical Review* for November, 1818. Next came a short paper in the *Journal de Physique* for June, 1819, in which 9 species were described as new. Then followed a series of articles in the *Western Review and Miscellaneous Magazine* from December, 1819, to November, 1820.

During the period of publication of these magazine articles Rafinesque had the matter made up in octavo forms and reprinted from the same type, the pagination, however, differing slightly.^a This reprint was issued by Rafinesque in 1820 under the title "*Ichthyologia Ohiensis*." Practically all the matter^b contained in the "*Ichthyologia*" appeared first in the magazine and the new species really date from it.

All of the *Ichthyologia* was therefore written at Lexington, but on his numerous collecting trips Rafinesque doubtless sometimes went far afield. He evidently found the Falls of the Ohio an excellent place to observe and collect fishes, for he records many species from that place. Among the waters he mentions specifically are the Kentucky, Licking, Big Sandy, Green, Cumberland, Tennessee, Little, Salt, and Elkhorn Rivers, Salt Creek, a pond near Lexington, and springs and caves near Lexington. It is probable that he collected in all these waters and many others in Kentucky.

Rafinesque was therefore the first naturalist to study the fishes of Kentucky and Tennessee. Our first knowledge of the ichthyological fauna of that region dates from Rafinesque's arrival at Lexington in 1818, and to the Transylvania University belongs the honor of having had as a member of its faculty the all-round naturalist who was the first to collect and study the fishes beyond the Alleghenies. To that institution must attach also the stigma of having driven from its halls the only man in its faculty whose name has survived to this day.

The second person to collect any of the fishes of the Tennessee Basin was Charles A. Hentz, of Florence, Ala. Some time prior to July, 1845, Mr. Hentz collected a number of fishes in Alabama waters, chiefly from the Tennessee River and its small tributaries in the vicinity of Florence. These he forwarded, together with drawings which he made of them, to Dr. D. H. Storer, of Boston, who described them at the meetings of the Boston Society of Natural History, July 2 and 16, 1845 (Storer, 1845). The number of species described from the Tennessee was four, of which two are still regarded as good.

^a For these statements I am indebted to Dr. Richard Ellsworth Call's excellent reprint of the *Ichthyologia Ohiensis*.

^b Only the Supplement, Corrections and Additions, and Index (pp. 85-90) did not appear in the periodical.

The next collector who paid any attention to the fishes of the Tennessee was Dr. Newman, of Huntsville, Ala., who placed in the hands of Prof. Louis Agassiz "a collection of not less than 33 species from the same water system." These were described by Prof. Agassiz in the American Journal of Arts and Sciences in 1854 (Agassiz, 1854).

The next naturalist to collect the fishes of the Tennessee Basin and the first, Rafinesque excepted, to study his own collections from that region was Prof. Edward Drinker Cope. In the summer and fall of 1867, Prof. Cope made large collections in the western part of Virginia from the Roanoke, James, Kanawha, and Holston Rivers. Prof. Cope says, "The fishes of the Roanoke were taken in the seventh month, those of the James and Kanawha in the eighth and ninth, and those of the Holston in the tenth, 1867."

The results of these field investigations were published by Prof. Cope in several papers, the titles of which are given in the bibliography (pp. 312, 313).

For the next nine years little, if any, ichthyological exploration was conducted in this region. In the summer of 1876, however, Prof. David Starr Jordan began making those collecting trips in Kentucky, Tennessee, Virginia, North Carolina, Georgia, and Alabama which were continued at intervals for 12 years and which added so greatly to our knowledge of the fishes of that region. Prof. Jordan was then (until 1879) professor of natural sciences in the Northwestern Christian University (now Butler University) at Irvington, near Indianapolis; and professor of natural sciences 1879-1885, and president 1885-1891 of the University of Indiana.

During the summer of 1876 he was accompanied by one of his students, Charles Henry Gilbert, and by Alembert Winthrop Brayton, then teacher of natural sciences in the Indianapolis high school. Collecting was done in various streams in Tennessee and North Carolina. Prof. Jordan, accompanied by Mr. Gilbert and Dr. Brayton, again collected in the same States in the summer of 1877. Very extensive collections were made, which formed the basis of a valuable paper by Jordan and Brayton.

In the summer of 1878 the writer was a member of a party of students led by Jordan, Brayton, and Gilbert on a walking trip through eastern Kentucky and Tennessee, western North Carolina, and northern Georgia, during which he made his first acquaintance with the fishes of that region.

In May, 1883, Dr. Jordan, assisted by Joseph Swain (then a senior at Indiana University, now president of Swarthmore College), again led a party of students from Indiana University into Kentucky and made collections of the fishes of the streams of Whitley County in that State.

The next year Prof. Charles H. Gilbert and Prof. Joseph Swain made considerable collections in east Tennessee and Kentucky and in northern Alabama. All the waters examined are in the Tennessee or the Cumberland Basin. They are all listed elsewhere in this paper.

In the summer of 1888 various places in the upper Tennessee Basin were visited by Dr. David Starr Jordan, Prof. Oliver Peebles Jenkins, and the writer, and large collections were made, which were reported on by Dr. Jordan.

In the spring of 1889 and the autumn of 1890 Prof. Philip H. Kirsch, at that time superintendent of schools, Columbia, Ky., made collections of fishes in the streams of Clinton County, Ky.

During the period from August 18 to September 9, 1891, Prof. Kirsch again collected fishes in Kentucky and Tennessee waters, this time from the southern tributaries of the Cumberland between Nashville, Tenn., and the crossing of the Cincinnati Southern Railroad at Burnside, Ky.

In the summer of 1890 Mr. Albert Jefferson Woolman, a former student of the writer at the Indiana State Normal School, and later of Dr. Jordan's at Indiana University, from which institution he had just graduated, examined many of the streams of Kentucky in the interests of the United States Fish Commission. He was assisted by Hiram W. Monical, of Brooklyn, Ind., and Charles O. Chambers, of Van Wert, Ohio, also students in the University of Indiana. The field work began July 23 and ended September 10. Mr. Monical assisted from July 23 to August 13 and Mr. Chambers from August 13 to September 10.

In September and October, 1893, the writer examined many streams and springs in east Tennessee in the interests of the fish-cultural work of the United States Fish Commission. In that work he was assisted by the late Dr. Josiah T. Scovell, of Terre Haute, Ind., and Dr. Revere R. Gurley, scientific assistant, United States Fish Commission. The work began at Knoxville September 27 and ended at Cumberland Gap October 17. Considerable collections of fishes were made, which have only recently been reported on by Evermann and Hildebrand.^a

In May, 1898, the writer spent several days at Louisville, Ky., studying the Ohio shad and at the same time making collections of the other species of food fishes then found at the Falls of the Ohio. These collections were reported on by the author in 1902. Little or no ichthyological work of a faunistic character has been done in Kentucky and Tennessee since this work in 1898.

^a Bulletin, U. S. Bureau of Fisheries, vol. XXXIV, 1914 (Sept. 21, 1916), pp. 431-452.

LIST OF WATERS EXAMINED.

Following is a list, approximately complete, of all the waters of the Tennessee and Cumberland River systems and of other waters in the States of Kentucky and Tennessee from which collections of fishes have been made.

The names of the streams or other waters are arranged alphabetically for ready reference. The particular place at which the stream was examined is indicated with some detail, the names of the collectors are given, and, when known, the exact date when the collecting was done, and, finally, reference to the paper in which the species collected were recorded.

- Arnwine, or Matlock, Spring, near Mount Verd, 5 miles north of Athens, Tenn. (Evermann, Scovell, and Gurley, collectors, October 5, 1893; Evermann and Hildebrand, 1916).
- Ball Creek, near Tazewell, Tenn. (Gurley, collector, October 18, 1893; Evermann and Hildebrand, 1916).
- Bayou de Chien, just north of Moscow, Ky., also 3 miles west of that place (Woolman and Monical, collectors, July 29, 1890; Woolman, 1892).
- Bear Creek, Smyth County, Va. (Cope, collector, October, 1867; Cope, 1869).
- Beaver Creek, 6 miles north of Glasgow, Ky. (Woolman and Monical, collectors, August 6, 1890; Woolman, 1892).
- Beaver Creek, above and below McCackney's milldam in Wayne County, Ky. (Kirsch, collector, September 3, 1891; Kirsch, 1893).
- Big Barren River, three-fourths mile northeast of Bowling Green, Ky. (Woolman and Monical, collectors, August 1, 1890; Woolman, 1892).
- Big Creek, at Big Creek, Ky. (Woolman and Chambers, collectors, August 22, 1890; Woolman, 1892).
- Big Nance Creek, at Courtland, Ala., and for 3 miles down (Kirsch, Andrews, and Jones, collectors, June 7, 1889; Gilbert, 1891).
- Big Sandy River (Rafinesque, 1818).
- Big Sandy River, at its mouth (Gilbert and Henshall, collectors, 1888; Woolman, 1892).
- Big South Fork of the Cumberland, on the shoals near the mouth of Rock Creek, 7 miles west of Whitley station, Ky. (Kirsch, collector, September 7, 1891; Kirsch, 1893).
- Big Spring, 8 miles southwest of Greenville, Tenn. (Scovell and Gurley, collectors, October 10, 1893; Evermann and Hildebrand, 1916).
- Big Sycamore Creek, near Tazewell, Tenn. (Gurley, collector, October 18, 1893; Evermann and Hildebrand, 1916).
- Blaine Creek, 2 miles west of the railroad bridge at Catalpa, Ky. (Woolman and Chambers, collectors, September 8, 1890; Woolman, 1892).
- Briar Creek, near Pleasant View in Whitley County, Ky. (Jordan and Swain, collectors, May, 1883; Jordan and Swain, 1883; Woolman, 1892).
- Brimstone Creek, for a distance of a mile near New River station, Tenn. (Kirsch, collector, September 9, 1891; Kirsch, 1893).
- Bull Creek, 4 miles west of Hyden, Ky. (Woolman and Chambers, collectors, August 23, 1890; Woolman, 1892).
- Callahan Springs, 5 miles northwest of Knoxville, Tenn. (Evermann, Scovell, and Gurley, collectors, September 27, 1893; Evermann and Hildebrand, 1916).
- Canada Creek, at a point 8 miles above its mouth, Wayne County, Ky. (Kirsch, collector, September 4, 1891; Kirsch, 1893).

- Caney Fork River, 1 mile west of Lancaster, Tenn. (Kirsch, collector, August 24, 1891; Kirsch, 1893).
 Caves, near Lexington, Ky. (Rafinesque, 1820).
 Chickamauga Creek, at Lee and Gordon's mill, Ga. (Evermann, Scovell, and Gurley, collectors, September 30, 1893; Evermann and Hildebrand, 1916).
 Chilohoway Creek, Smyth County, Va. (Cope, 1869).
 Clear Creek, 1 mile west of the railroad station at Wildie, or 10 miles southwest of Livingston, Ky. (Woolman and Monical, collectors, 1890; Woolman, 1892).
 Clear Fork of Cumberland River, near Pleasant View, Whitley County, Ky. (Jordan and Swain, collectors, May, 1883; Jordan and Swain, 1883; Woolman, 1892).
 Clinch River, tributaries near Clinton, Tenn. (Gilbert and Swain, collectors, 1884; Gilbert, 1887).
 Clinch River, at Walkers Ford, Tenn. (Evermann, Scovell, and Gurley, collectors, October 12, 1893; Evermann and Hildebrand, 1916).
 Clinch River (tributary of), Tenn. (Cope, 1870).
 Coon Creek, near Zebulon, Ky. (Woolman and Chambers, collectors, September 5, 1890; Woolman, 1892).
 Cox Creek, near Florence, Ala. (Gilbert and Swain, collectors, 1884; Gilbert, 1888).
 Craigmites Springs, 1 mile north of Cleveland, Tenn. (Evermann, Scovell, and Gurley, collectors, October 3, 1893; Evermann and Hildebrand, 1916).
 Crawfish Springs, Ga. (Evermann, Scovell, and Gurley, collectors, September 30, 1893; Evermann and Hildebrand, 1916).
 Cypress Creek, near Florence, Ala. (Gilbert and Swain, collectors, 1884; Gilbert, 1887).
 Cypress Creek, near Florence, Ala. (Kirsch, Andrews, and Jones, collectors, June 5, 1889; Gilbert, 1891).
 Cumberland River (Rafinesque, 1820).
 Cumberland River (headwaters), in Campbell County, Tenn. (Cope, 1870); at Cumberland Falls (Evermann, collector, June, 1878).
 Cumberland River, 1¼ miles south of Kuttawa, Ky. (Woolman and Monical, collectors, July 26, 1890; Woolman, 1892).
 Cumberland River, both above and below the mill just south of Barbourville, Ky. (Woolman and Chambers, collectors, August 14, 1890; Woolman, 1892).
 Cumberland River, just below the bridge between the railroad station and the town of Pineville, Ky. (Woolman and Chambers, collectors, August 15, 1890; Woolman, 1892).
 Cumberland River, at the lock and dam at the mouth of Willis Creek in Clinton County, Ky. (Kirsch, collector, September 1, 1891; Kirsch, 1893).
 Cutshin Creek, 4 miles east of Hyden, Ky., and 3 miles from the point where this creek flows into the Middle Fork (Woolman and Chambers, collectors, August 24, 1890; Woolman, 1892).
 Davis Springs, 1½ miles northwest of Greenville, Tenn. (Scovell and Gurley, collectors, October 10, 1893; Evermann and Hildebrand, 1916).
 Drake Creek, 8 miles southeast of Bowling Green, Ky. (Woolman and Monical, collectors, August 2, 1890; Woolman, 1892).
 Duck River, near Columbia, Tenn. (Gilbert and Swain, collectors, 1884; Gilbert, 1891).
 Eagle Creek, for a distance of 2 miles near Olympus, Tenn. (Kirsch, collector, August 27, 1891; Kirsch, 1893).
 Eastaunaula Creek, near Athens, Tenn. (Evermann, Scovell, and Gurley, collectors, October 6, 1893; Evermann and Hildebrand, 1916).
 Elk River, at Estill Springs, Tenn. (Jordan and Gilbert, collectors, 1876; Jordan, 1878).
 Elkhorn River, Ky. (Rafinesque, 1820).
 Fountain Head Springs, at Fountain City near Knoxville, Tenn. (Evermann and Gurley, collectors, September 27, 1893; Evermann and Hildebrand, 1916).
 French Broad River, in Madison County, N. C. (Cope, 1870); at Alexander's, N. C. (Evermann, collector, July 4, 1878).
 Gap Creek, near Pleasant View, Whitley County, Ky. (Jordan and Swain, collectors, May, 1883; Jordan and Swain, 1883).
 Goose Creek, near Garratsville, Ky., 15 miles from its mouth (Woolman and Chambers, collectors, August 20, 1890; Woolman, 1892).
 Green's pond, or Newman Spring, 6 miles southeast of Chattanooga, Tenn. (Evermann, Scovell, and Gurley, collectors, September 29, 1893; Evermann and Hildebrand, 1916).

- Green River (Rafinesque, 1820).
- Green River, 5 miles southwest of Greensburg, Ky. (Woolman and Monical, collectors, August 7, 1890; Woolman, 1892).
- Green River, one-half mile east of Greensburg, Ky. (Woolman and Monical, collectors, August 8, 1890; Woolman, 1892).
- Hector Creek, 5 miles west of Big Creek, Ky. (Woolman and Chambers, collectors, August 21, 1890; Woolman, 1892).
- Horse Creek, 2 miles above its mouth near Garratsville, Ky. (Woolman and Chambers, collectors, August 20, 1890; Woolman, 1892).
- Hungrymother Creek, Smyth County, Va. (Cope, 1869).
- Indian Creek, Clinton County, Ky. (Kirsch, collector, 1889-90; Kirsch, 1892).
- Indian Creek, near Cumberland Gap, Tenn. (Gurley, collector, October 17, 1893; Evermann and Hildebrand, 1916).
- Island Creek, 1 mile from its mouth and 2 miles east of Pikeville, Ky. (Woolman and Chambers, collectors, September 1, 1890; Woolman, 1892).
- John Creek, at Zebulon, Ky. (Woolman and Chambers, collectors, September 5, 1890; Woolman, 1892).
- Julians Spring, about 8 miles southeast of Cleveland, Tenn. (Evermann, Scovell, and Gurley, collectors, October 4, 1893; Evermann and Hildebrand, 1916).
- Kentucky River (Rafinesque, 1820).
- Kentucky River, near Estill (Rafinesque, 1820).
- King Solomon's Cave, at Cumberland Gap, Tenn. (Evermann, Scovell, and Gurley, collectors, October 14, 1893; Evermann and Hildebrand, 1916).
- Left Troublesome Creek, at Hindman, Ky. (Woolman and Chambers, collectors, August 28, 1890; Woolman, 1892).
- Levisa Fork of the Big Sandy River, at Pikeville, Ky. (Woolman and Chambers, collectors, September 2, 1890; Woolman, 1892).
- Little Barren River, from the mill at Osceola, Ky., one-half mile downstream (Woolman and Monical, collectors, August 6, 1890; Woolman, 1892).
- Licking River (Rafinesque, 1820).
- Licking River, at Farmer, Rowan County, Ky. (Woolman and Chambers, collectors, September 9, 1890; Woolman, 1892).
- Little Rockcastle River, 6 miles northeast of Livingston, Ky. (Woolman and Monical, collectors, August 12, 1890; Woolman, 1892).
- Little River, Ky. (Mr. Wilkins, collector, Rafinesque, 1820).
- Little Sandy River, at its mouth (Gilbert and Henshall, collectors, 1888; Woolman, 1892).
- Little South Fork of the Cumberland, at the mouth of Canada Creek, Wayne County, Ky. (Kirsch, collector, September 5, 1891; Kirsch, 1893).
- Lot Creek, 2 miles west of Hazard and 1 mile from its mouth (Woolman and Chambers, collectors, August 26, 1890; Woolman, 1892).
- Lyon Creek, near the insane asylum, 5 miles west of Knoxville, Tenn. (Evermann, Scovell, and Gurley, collectors, September 28, 1893; Evermann and Hildebrand, 1916).
- Mammoth Cave, Ky. (De Kay, collector; D. H. Storer, 1846).
- Mammoth Cave, Ky. (Alpheus Hyatt, collector; Putnam, 1872).
- Mallett Creek, near Hillsboro, Ala. (Kirsch, Andrews, and Jones, collectors, June 8, 1889; Gilbert, 1891).
- Matlock, or Arnwine Spring, near Mount Verd, 5 miles north of Athens, Tenn. (Evermann, Scovell, and Gurley, collectors, October 5, 1893; Evermann and Hildebrand, 1916).
- Mayfield Creek, at the "Old Mill Pond" and the "Basin," one-half mile east and three-fourths mile south of the railroad station at Hickory Grove, Ky. (Woolman and Monical, collectors, July 28, 1890; Woolman, 1892).
- Middle Fork of the Kentucky River, 4 miles north of Hyden, Ky. (Woolman and Chambers, collectors, August 22, 1890; Woolman, 1892).
- Newman Spring, or Greens Pond, 6 miles southeast of Chattanooga, Tenn. (Evermann, Scovell, and Gurley, collectors, September 29, 1893; Evermann and Hildebrand, 1916).
- New River, at New River station, Tenn. (Kirsch, collector, September 9, 1891; Kirsch, 1893).

- Nickajack Cave and Stream, at Shellmound, 20 miles southwest of Chattanooga, Tenn. (Evermann, Scovell, and Gurley, collectors, October 2, 1893; Evermann and Hildebrand, 1916).
- Nolichucky River, at Loves Ferry south of Greenville, Tenn. (Evermann, Scovell, and Gurley, collectors, October 11, 1893; Evermann and Hildebrand, 1916).
- North Fork of the Holston River, near Saltville, Va. (Cope, collector, October, 1867; Cope, 1869).
- North Fork of the Kentucky River, just south of Hazard, Ky. (Woolman and Chambers, collectors, August 25, 1890; Woolman, 1892).
- Norvel Spring, 7 miles east of Athens, Tenn. (Evermann, Scovell, and Gurley, collectors, October 7, 1893; Evermann and Hildebrand, 1916).
- Obeys River, for a distance of $1\frac{1}{2}$ miles near Olympus, Tenn. (Kirsch, collector, August 28, 1891; Kirsch, 1893).
- Obion River, 12 miles southeast of Moscow, Ky. (Woolman and Monical, collectors, July 30, 1890; Woolman, 1892).
- Ohio River at the Falls (Rafinesque, 1818-20; Evermann, collector, March, 1886, and May, 1898; Evermann, 1902).
- Ohio River (Rafinesque, 1818-20).
- Ohio River, at Cincinnati (Duméril, 1870).
- Otter Creek, near Jones milldam in Wayne County, Ky. (Kirsch, collector, September 2, 1891; Kirsch, 1893).
- Ousley Spring, 8 miles from Tazewell, Tenn. (Evermann, Scovell, and Gurley, collectors, October 12, 1893; Evermann and Hildebrand, 1916).
- Paynes Spring, 2 miles north of Cleveland, Tenn. (Evermann, Scovell, and Gurley, collectors, October 3, 1893; Evermann and Hildebrand, 1916).
- Pigeon Roost Creek, near Pulaski, Tenn. (Gilbert and Swain, collectors, 1884; Gilbert, 1891).
- Pistol Creek, at Maryville, Tenn. (Evermann, collector, October 10, 1893; Evermann and Hildebrand, 1916).
- Pitman Creek, 3 miles west of Greensburg, Ky., and 8 miles above its mouth (Woolman and Monical, collectors, August 9, 1890; Woolman, 1892).
- Pond near Lexington, Ky. (William M. Clifford, collector, 1818; Rafinesque, 1820).
- Pond Creek, 2 miles from Rockport, Ky., or one-half mile above its mouth (Woolman and Monical, collectors, July 25, 1890; Woolman, 1892).
- Powell River, 8 miles south of Cumberland Gap, Tenn. (Woolman and Chambers, collectors, August 16, 1890; Woolman, 1892).
- Read's spring, 7 miles north of Chattanooga, Tenn. (Evermann, Scovell, and Gurley, collectors, October 1, 1893; Evermann and Hildebrand, 1916).
- Redbird Creek (south fork of the Kentucky), 1 mile west of Big Creek, Ky. (Woolman and Chambers, collectors, August 22, 1890; Woolman, 1892).
- Richland Creek, near Pulaski, Tenn. (Gilbert and Swain, collectors, 1884; Gilbert, 1891).
- Richland Creek, $1\frac{1}{2}$ miles west of Barbourville, Ky., near the mouth of Smoky Fork (Woolman and Chambers, collectors, August 14, 1890; Woolman, 1892).
- Right fork of Beaver Creek, at Lackey, Ky. (Woolman and Chambers, collectors, August 29, 1890; Woolman, 1892).
- Roaring Fork, 5 miles north of Greenville, Tenn. (Scovell and Gurley, collectors, October 10, 1893; Evermann and Hildebrand, 1916).
- Roaring River, a few miles from Windle, Tenn. (Kirsch, collector, August 30, 1891; Kirsch, 1893).
- Robinson Creek, near Robinson, Ky. (Woolman and Chambers, collectors, August 30, 1890; Woolman, 1892).
- Rockcastle River, near Livingston, Ky. (Jordan and Gilbert, collectors, 1876; Woolman, 1892).
- Rockcastle River, just below the railroad bridge (Gilbert and Swain, collectors, 1884; Woolman, 1892).
- Rockcastle River, one-half mile above the mouth of Little Rockcastle River (Woolman and Monical, collectors, August 12, 1890; Woolman, 1892).
- Rockcastle River, 2 miles from Livingston, Ky. (Woolman and Monical, collectors, August 13, 1890; Woolman, 1892).

- Rock Creek, in its lower course near Whitley railway station, Ky. (Kirsch, collector, September 7, 1891; Kirsch, 1893).
- Rolling Fork of Salt River, near New Market, Ky. (Gilbert and Swain, collectors, 1884; Woolman, 1892).
- Rolling Fork of Salt River, $1\frac{1}{4}$ miles east of the railroad station at Booth, Ky. (Woolman and Monical, collectors, July 24, 1890; Woolman, 1892).
- Rolling Fork of Salt River, near New Haven, Ky. (Gilbert and Swain, collectors, 1884; Woolman, 1891).
- Rough Creek, below the mill at Hartford, Ky. (Woolman and Monical, collectors, July 25, 1890; Woolman, 1892).
- Round Lick Creek, at Watertown, Tenn. (Kirsch, collector, August 22, 1891; Kirsch, 1893).
- Salt Creek, Ky. (Rafinesque, 1820).
- Salt River, Ky. (Rafinesque, 1820).
- Sandy River (Rafinesque, 1820).
- Shoal Creek, near Florence, Ala. (Gilbert and Swain, collectors, 1884; Gilbert, 1887).
- Shoal Creek, near Florence, Ala. (Gilbert and Swain, collectors, 1884; Gilbert, 1891).
- Shelby Creek, near its mouth near Robinson, Ky. (Woolman and Chambers, collectors, August 30, 1890; Woolman, 1892).
- Slate Creek, Ky. (Mr. Owings, collector; Rafinesque, 1820).
- Smith Fork of Caney Fork River, 1 mile above the railroad bridge at Lancaster, Tenn. (Kirsch, collector, August 24, 1891; Kirsch, 1893).
- Smoky Fork of Richland Creek, a half mile above its mouth near Barbourville, Ky. (Woolman and Chambers, collectors, August 14, 1890; Woolman, 1892).
- South Fork of Cumberland River, in Campbell County, Tenn. (Cope, 1870).
- South Fork of the Kentucky River (Redbird Creek), 1 mile west of Big Creek, Ky. (Woolman and Chambers, collectors, August 22, 1890; Woolman, 1892).
- Springs near Lexington, Ky. (Rafinesque, 1820).
- Spring Branch, at Tusculumbia, Ala. (Kirsch, Andrews, and Jones, collectors, June 6, 1889; Gilbert, 1891).
- Spring Creek near Hot Springs, N. C. (Jordan, Brayton, and Gilbert, collectors, 1877 and 1878; Jordan, Jenkins, and Evermann, collectors, 1888; Jordan and Brayton, 1878; and Jordan, 1889).
- Spring Creek, $3\frac{1}{2}$ miles northeast of Courtland, Ala. (Kirsch, Andrews, and Jones, collectors, June 7 1889; Gilbert, 1891).
- Spring Creek, at Huntsville, Ala. (Kirsch, Andrews, and Jones, collectors, May 27, 1889; Gilbert, 1891).
- Spring Creek, at Netherland, Overton County, Tenn. (Kirsch, collector, August 25, 1891; Kirsch, 1893).
- Spring Creek, at Springcreek station, Tenn., 12 miles from its mouth (Kirsch, collector, August 21, 1891; Kirsch, 1893).
- Stiths Springs, 1 mile south of Cleveland, Tenn. (Evermann, Scovell, and Gurley, collectors, October 4, 1893; Evermann and Hildebrand, 1916).
- Stone River, near Nashville, Tenn. (Gilbert and Swain, collectors, 1884; Gilbert, 1887).
- Straight Creek, 2 miles above its mouth, near Pineville, Ky. (Woolman and Chambers, collectors, August 15, 1890; Woolman, 1892).
- Sturgéon Creek, near Travelers Rest, Ousley County, Ky. (Gilbert and Swain, collectors, 1884; Gilbert, 1887).
- Tellico River, at Tellico Plains (Evermann, Scovell, and Gurley, collectors, October 7 and 8, 1893; Evermann and Hildebrand, 1916).
- Tennessee River (Rafinesque, 1820; Cope, 1867a).
- Tennessee River, near Florence, Ala. (Charles A. Hentz, collector; Storer, 1845).
- Tennessee River, near Huntsville, Ala. (Dr. Newman, collector; Agassiz, 1854; Dumèril, 1870).
- Tennessee River, at the mouth of Lyon Creek, 5 miles west of Knoxville, Tenn. (Evermann, Scovell, and Gurley, collectors, September 28, 1893; Evermann and Hildebrand, 1916).
- Tennessee River, 3 miles above Paducah, Ky. (Woolman & Monical, collectors, July 28, 1890; Woolman, 1892).
- Tradewater River, near Dawson Springs, Ky. (Woolman and Monical, collectors, July 26, 1890; Woolman, 1892).

- Triplet Creek, a half mile west of the railroad station at Farmer, Ky., and about the same distance from the mouth of the creek (Woolman and Chambers, collectors, September 9, 1890; Woolman, 1892).
- Troublesome Creek, near Dwarf, Ky., at the crossing of the Hazard and Hindman road, 12 miles north-east of Hazard, Ky. (Woolman and Chambers, collectors, August 28, 1890; Woolman, 1892).
- Tumbling Creek, near Saltville, Va. (Cope, 1869).
- Tuscumbia Spring, at Tuscumbia, Ala. (Gilbert and Swain, collectors, 1884; Gilbert, 1887; Evermann, collector, January 8, 1901).
- Veta Wright Creek, 3 miles south of Decatur, Ala. (Kirsch, Andrews, and Jones, collectors, June 1, 1889; Gilbert, 1891).
- Warm Springs Creek, in Madison County, N. C. (Cope, 1870).
- Well near Bowling Green, Ky. (J. E. Younglove, collector; Putnam, 1872).
- Well at Lebanon, Wilson County, Tenn. (J. M. Safford, collector; Putnam, 1872).
- Well near Moulton, Ala. (Thomas Peters, collector; Putnam, 1872).
- West Fork of Stone River, near Murfreesboro, Tenn. (Kirsch, collector, August 20, 1891; Kirsch, 1893).
- Willis Creek, at its mouth in Clinton County, Ky. (Kirsch, collector, September 1, 1891; Kirsch, 1893).
- Wolf River, 3 miles north of Byrdstown, Tenn. (Kirsch, collector, August 28, 1891; Kirsch, 1893).
- Wolf Creek, near Pleasant View, Whitley County, Ky. (Jordan and Swain, collectors, May, 1883; Jordan and Swain, 1883; Woolman, 1892).
- Yellow Creek, near Pleasant View, Whitley County, Ky. (Jordan and Swain, collectors, May, 1883; Jordan and Swain, 1883).

BIBLIOGRAPHY.

In the following pages is given in chronological sequence a list of the papers of a faunistic nature dealing with the fishes of Kentucky and Tennessee. Following the title of each paper is a list of the species mentioned in it. For the sake of completeness in giving the contents of some of the earlier papers long since out of print and now almost if not quite impossible to obtain, all the species recorded are here listed, whether from the region covered by the present paper or not.

The statement is usually given in tabular form and shows (1) the page on which the species is recorded, (2) the name under which it was recorded, (3) the present identification, and (4) the particular stream or locality from which it was recorded. In giving the localities the exact words of the author have been used whenever it seemed desirable to do so. The names of species described as new are printed in *italics*.

1818. C. S. RAFINESQUE.

Discoveries in Natural History, made during a Journey through the Western Region of the United States. <American Monthly Magazine and Critical Review, vol. III, no. 5, pp. 354-356, 1818.

This is a letter by Rafinesque to Samuel L. Mitchill, president, and the other members of the New York Lyceum of Natural History, dated at Louisville, Ky., July 20, 1818. It names 13 genera and 26 species of fishes. The names used were regarded as provisional, and some of them were afterwards changed.

The list is as follows:

Page.	Species as recorded.	Present identification.	Locality.
354	<i>Perca salmonea</i>	Stizostedion vitreum.....	Ohio River.
354	<i>Perca chrysops</i>	Roccus chrysops.....	Do.
354	<i>Sciæna grunniens</i>	Aplodinotus grunniens.....	Do.
354	<i>Sciæna caprodes</i>	Percina caprodes.....	Do.
354	<i>Bodianus calliurus</i>	Micropterus dolomieu.....	Do.
354	<i>Sparus cyaneus</i>	Apomotis cyanellus.....	Do.
354	<i>Sparus nigropunctatus</i>	Pomoxis annularis.....	Do.
354	<i>Silurus punctatus</i>	Ictalurus punctatus.....	Do.
355	<i>Silurus olivaris</i>	Leptops olivaris.....	Do.
355	<i>Silurus ambodon</i>	do.....	Do.
355	<i>Catostomus bubalus</i>	Ictiobus bubalus.....	Do.
355	<i>Catostomus erythrurus</i>	Moxostoma aureolum.....	Do.
355	<i>Catostomus macropterus</i>	(?).....	Do.
355	<i>Catostomus duquesnei</i>	Placopharynx duquesnei.....	Do.
355	<i>Chupea heterurus</i>	Dorosoma cepedianum.....	Do.
355	<i>Chupea alosoides</i>	Hiodon alosoides.....	Do.
355	<i>Glossodon harengoides</i>	Hiodon tergisus.....	Do.
355	<i>Glossodon heterurus</i>	do.....	Do.
355	<i>Hydrargyra dinema</i>	Notropis atherinoides.....	Do.
355	<i>Hydrargyra notata</i>	Pimephales notatus.....	Do.
355	<i>Hydrargyra amblops</i>	Hybopsis amblops.....	Do.
355	<i>Lepisosteus fluviatilis</i>	(?).....	Do.
355	<i>Polyodon folium</i>	Polyodon spathula.....	Do.
355	<i>Polyodon pristiis</i>	(?).....	Do.
355	<i>Acipenser platiorhynchus</i>	Scaphirhynchus platiorhynchus.....	Do.
355	<i>Silurus pallidus</i>	Ictalurus punctatus.....	Do.

1818a. C. S. RAFINESQUE.

Further Discoveries in Natural History, made during a Journey through the Western Region of the United States. <American Monthly Magazine and Critical Review, vol. III, no. 6, pp. 445-447, 1818.

This title adds 8 genera and 22 species names to the previous list.
The list is as follows:

Page.	Species as recorded.	Present identification.	Locality.
445	<i>Lepisosteus platostomus</i>	<i>Lepisosteus platostomus</i>	Ohio River
445	<i>Lepisosteus stenorhynchus</i>	(?)	Do.
445	<i>Anguilla laticauda</i>	<i>Anguilla chrisypa</i>	Do.
445	<i>Cyprinus fasciolaris</i>	<i>Erimyzon sucetta oblongus</i>	Do.
445	<i>Cyprinus trachiaphas</i>	(?)	Do.
446	<i>Exoglossum argentum</i>	(?)	Do.
446	<i>Olmerus albula</i>	(?)	Do.
446	<i>Bodianus calliops</i>	<i>Macropterus dolomieu</i>	Do.
446	<i>Pogostoma leucops</i>	(?)	Do.
446	<i>Esox vittatus</i>	<i>Lucius lucius</i>	Do.
446	<i>Esox fasciolaris</i>	<i>Lucius vermiculatus</i>	Do.
446	<i>Catostomus amiopterus</i>	(?)	Do.
446	<i>Catostomus ambiodon</i>	(?)	Do.
447	<i>Catostomus velifer</i>	<i>Carpiodes velifer</i>	Do.
447	<i>Glossodon chrysoops</i>	(?)	Do.
447	<i>Clupea chrysochloris</i>	<i>Pomolobus chrysochloris</i>	Do.
447	<i>Silurus pallidus</i>	<i>Ictalurus punctatus</i>	Do.
447	<i>Silurus cerulescens</i>	do	Do.
447	<i>Glanis limosus</i>	<i>Leptops olivaris</i>	Do.
447	<i>Acipenser hepripus</i>	<i>Acipenser rubicundus</i>	Do.
447	<i>Dinotus truncatus</i>	(?)	Do.
447	<i>Litholepis adamantinus</i>	<i>Lepisosteus tristoechus</i>	Do.

1818b. C. S. RAFINESQUE.

Description of three new genera of Fluvatile Fish, *Pomoxis*, *Sarchirus*, and *Exoglossum*.
Read December 1 and 8. <Journ. Acad. Nat. Sci. Phila., vol. 1, 1818, pp. 417-419.

In this paper Rafinesque describes as new the genera *Pomoxis*, *Sarchirus*, and *Exoglossum* and lists the following species from the Ohio:

Page.	Species as recorded.	Present identification.	Locality.
417, pl. 17, fig. 1.....	<i>Pomoxis Annularis</i>	<i>Pomoxis annularis</i>	Ohio River at the falls.
419, pl. 17, fig. 2.....	<i>Sarchirus Vittatus</i>	<i>Lepisosteus osseus</i>	Lower parts of the Ohio.
420, pl. 17, fig. 3.....	<i>Exoglossum (Hypentelium) macropterus</i>	<i>Hypentelium nigricans</i>	Falls of the Ohio.

1818c. C. S. RAFINESQUE.

Further Account of Discoveries in Natural History in the Western States, by Constantine Samuel Rafinesque, Esq. Communicated in a letter from that gentleman to the editor, Lexington, October, 1818. <American Monthly Magazine and Critical Review, November, 1818.

The following names occur in this letter:

Page.	Species as recorded.	Present identification.	Locality.
41	<i>Pomoxis annularis</i>	<i>Pomoxis annularis</i>	Ohio River at the falls.
41	<i>Noturus flavus</i>	<i>Noturus flavus</i>	Do.
41	<i>Sarchirus vittatus</i>	<i>Lepisosteus osseus</i>	Lower parts of the Ohio.

1819. C. S. RAFINESQUE.

Prodrome de 70 nouveaux genres d'animaux découverts dans l'intérieur des États-Unis d'Amérique durant l'année 1818. <Jour. de Physique, de Chimie et d'Histoire Naturelle et des Arts, etc., tome 88, pp. 417-429, Paris, June, 1819. See also, Isis, Litterarischer Anzeiger, pp. 236-244, Leipzig, 1820.

In this paper Rafinesque described as new nine species from the Ohio and its tributaries in Kentucky, as follows:

Page.	Species as recorded.	Present identification.	Locality.
419	<i>Amblodon grunniens</i>	Aplodinotus grunniens.....	Ohio River.
419	<i>Etheostoma flabellaris</i>	Etheostoma flabellare.....	Tributaries of the Ohio.
420	<i>Lepomis cyanellus</i>	Apomotis cyanellus.....	Ohio River.
420	<i>Lepomis macrochira</i>	Lepomis macrochirus.....	Ohio and Licking Rivers.
421	<i>Noturus luteus</i>	Noturus flavus.....	Ohio River.
421	<i>Amblodon bubalus</i>	Ictiobus bubalus.....	Do.
421	<i>Cycleptus nigrescens</i>	Cycleptus elongatus.....	Do.
421	(?) <i>Amblodon niger</i>	do.....	Do.
421	<i>Notemigonus auratus</i>	Abramis crysoleucas.....	Falls of the Ohio.

1820. C. S. RAFINESQUE.

Description of the Silures, or Catfishes of the River Ohio. <Quarterly Journal of Science, Literature, and Arts, Royal Institution, vol. IX, p. 48, London, 1820.

In this paper, which Rafinesque refers to as his monography of the catfishes, are described 11 species and 6 varieties of catfishes. The following were described from the Kentucky-Tennessee region:

Page.	Species as recorded.	Present identification.	Locality.
51	<i>Silurus melas</i>	Ameiurus melas.....	Ohio River.
51	<i>Silurus maculatus</i>	Ictalurus punctatus.....	Do.
51	<i>Silurus pallidus</i>	do.....	Do.
51	<i>Silurus cerulescens</i>	do.....	Do.
51	<i>Silurus argentinus</i>	do.....	Do.
51	<i>Silurus argyrus</i>	do.....	Do.
48	<i>Silurus argyrus</i> var. <i>erythroptera</i>	do.....	Do.
48	<i>Silurus argyrus</i> var. <i>marginatus</i>	do.....	Do.
48	<i>Silurus argyrus</i> var. <i>lateralis</i>	do.....	Do.
48	<i>Silurus argyrus</i> var. <i>leucoptera</i>	do.....	Do.
48	<i>Silurus lividus</i> var. <i>fuscatulus</i>	Ameiurus natalis.....	Do.
51	<i>Silurus cupreus</i>	do.....	Do.
50	<i>Silurus nebulosus</i>	Leptops olivaris.....	Do.
50	<i>Silurus viscosus</i>	do.....	Do.
50	<i>Silurus limosus</i>	do.....	Do.

1820a. C. S. RAFINESQUE.

Ichthyologia Ohiensis, or Natural History of the Fishes Inhabiting the River Ohio and its Tributary Streams, preceded by a physical description of the Ohio and its branches. By C. S. Rafinesque, Professor of Botany and Natural History in Transylvania University, author of the Analysis of Nature, etc., etc., member of the Literary and Philosophical Society of New York, the Historical Society of New-York, the Lyceum of Natural History of New-York, the Academy of Natural Sciences of Philadelphia, the American Antiquarian Society, the Royal Institute of Natural Sciences of Naples, the Italian Society of Arts and Sciences, the Medical Societies of Lexington and Cincinnati, etc., etc. The art of seeing well, or of noticing and distinguishing with accuracy the objects which we perceive, is a high faculty of mind, unfolded in few individuals, and despised by those who can neither acquire it, nor appreciate its results. Lexington, Ky. Printed for the author by W. G. Hunt. (Price, one dollar.) 1820.

As already stated, all of the Ichthyologia except the Supplement, the Corrections and Additions, and the Index first appeared in the Western Review and Miscellaneous Magazine, a journal published at Lexington from November, 1819, to December, 1820. Rafinesque had the matter arranged in octavo forms and reprinted at the close of the year 1820 as the "Ichthyologia Ohiensis."

The following tabular statement, for which we are indebted to Dr. Call, correlates the pagination of the Western Review and Miscellaneous Magazine with that of the Ichthyologia Ohiensis.

Volume.	No.	Date.	Serial No.	Pages Western Review and Miscellaneous Magazine.	Pages Ichthyologia Ohiensis.
I	5	December, 1819.....	I	395-313	<i>1-13</i>
I	6	January, 1820.....	II	361-377	<i>13-29</i>
II	1	February, 1820.....	III	49-57	<i>29-37</i>
II	3	April, 1820.....	IV	169-177	<i>37-45</i>
II	4	May, 1820.....	V	235-242	<i>45-53</i>
II	5	June, 1820.....	VI	299-307	<i>53-60</i>
II	6	July, 1820.....	VII	355-363	<i>60-69</i>
III	3	October, 1820.....	VIII	165-173	<i>69-77</i>
III	4	November, 1820.....	IX	244-252	<i>77-84</i>

The total number of nominal species recorded in the Ichthyologia is 113. Of these, 5 (*Salmo Alleganiensis*, *Salmo nigricans*, *Rutilus compressus*, *Pristis Mississippiensis*, and *Proceros maculatus*) are extra limital, and 10 (*Perca nigropunctata*, *Aplocentrus calliops*, *Pogastoma leucops*, *Catostomus anisopturus*, *Catostomus niger*, *Catostomus fasciolaris*, *Catostomus* (?) *megastomus*, *Pylodictis limosus*, *Accipenser macrostomus*, and *Dinectus truncatus*) were based on drawings furnished him by Mr. Audubon. These drawings were, in most respects, grotesque in character and not meant to represent any fishes that Audubon had actually seen. Nevertheless, Audubon, playing upon Rafinesque's credulity, and "with a suave manner and with an air of absolute truthfulness," presented them to Rafinesque, who, with evident hesitation yet with entire confidence in the great ornithologist, proceeded in good faith to describe them.

It is said that Rafinesque visited Audubon at Henderson, Ky. After spending the evening in pleasant conversation and exchange of views regarding the natural history of the region in which they were, Rafinesque was shown to his room, which was in the garret. While preparing to retire Audubon heard a commotion in Rafinesque's room, and, rushing up stairs, saw the eccentric naturalist in night clothes, and with Audubon's favorite violin grasped firmly in his hand, striking wildly at a bat which was flying about the room, and which Rafinesque declared must be a "new species." Audubon arrived on the scene just in time to see the violin broken. Perhaps he never quite forgave his guest for this injury to his violin. Perhaps it was this incident, together with Rafinesque's childlike credulity, which induced Audubon to play the practical joke. However that may be, the result has been the adding of several names to ichthyological literature which have caused much concern to later ichthyologists. In the present paper it is thought best merely to mention these names, as above. This leaves 98 species which properly belong in the Ichthyologia. They are all given in the following tabular statement. In the first column is given the pagination of the Western Review and Miscellaneous Magazine in arabic and that of the Ichthyologia in *italic* figures. The volume of the magazine is also shown.

Volume and page.	Species as recorded.	Present identification.	Locality.
I, 369, 21	<i>Perca Salmonea</i>	<i>Stizostedion vitreum</i>	Ohio, Licking, and Kentucky Rivers.
I, 370, 22	<i>Perca chrysops</i>	<i>Roccus chrysops</i>	Ohio River chiefly in the lower parts.
I, 372, 24	<i>Ambloclon grunniens</i>	<i>Aplodinotus grunniens</i>	Ohio, Tennessee, Cumberland, and Kentucky Rivers.
I, 374, 26	<i>Calliurus Punctulatus</i>	<i>Micropterus dolomieu</i>	Falls of the Ohio.
I, 375, 27	<i>Ichthelis macrochira</i>	<i>Lepomis macrochirus</i>	Ohio and Green Rivers.
I, 376, 28	<i>Ichthelis cyanella</i>	<i>Apomotis cyanellus</i>	Falls of the Ohio.
I, 376, 28	<i>Ichthelis melanops</i>	do.....	Tributary streams of the Ohio, Kentucky, and Licking Rivers.
I, 377, 29	<i>Ichthelis enythrops</i>	<i>Ambloplites rupestris</i>	No stream mentioned.
II, 49, 29	<i>Ichthelis aurita</i>	<i>Lepomis auritus</i>	Rivers, creeks, and ponds of Kentucky.
II, 49, 29	<i>Ichthelis megalotis</i>	<i>Lepomis megalotis</i>	Kentucky, Licking, and Sandy Rivers, etc.
II, 50, 30	<i>Lepomis pallida</i>	<i>Micropterus salmoides</i>	Ohio River.
II, 51, 31	<i>Lepomis trifasciata</i>	<i>Micropterus dolomieu</i>	Ohio River and many other streams.
II, 51, 31	<i>Lepomis flexolaris</i>	do.....	Ohio and tributaries.
II, 52, 32	<i>Lepomis salmonea</i>	do.....	Ohio, Kentucky, Green, and Licking Rivers, etc.
II, 52, 32	<i>Lepomis notata</i>	do.....	Do.
II, 52, 32	<i>Lepomis icheloides</i>	<i>Ambloplites rupestris</i>	Kentucky River and tributary streams.
II, 53, 33	<i>Pomoxis annularis</i>	<i>Pomoxis annularis</i>	Falls of the Ohio.
II, 56, 36	<i>Etheostoma callura</i>	<i>Micropterus dolomieu</i>	Ohio and Salt Rivers, etc.
II, 56, 36	<i>Etheostoma flabellata</i>	<i>Etheostoma flabellata</i>	Falls of the Ohio.
II, 169, 37	<i>Etheostoma nigra</i>	<i>Boleosoma nigrum</i>	Green River.
II, 169, 37	<i>Etheostoma blennioides</i>	<i>Diplesion blennioides</i>	Ohio River.
II, 170, 38	<i>Etheostoma caprodes</i>	<i>Percina caprodes</i>	Ohio, Cumberland, Tennessee, Green, Licking, and Kentucky Rivers.
II, 171, 39	<i>Pomolobus chrysochloris</i>	<i>Pomolobus chrysochloris</i>	Falls of the Ohio.
II, 172, 40	<i>Dorosoma notata</i>	<i>Dorosoma cepedianum</i>	Do.
II, 172, 40	<i>Notemigonus avaratus</i>	<i>Abramis crysoleucas</i>	Ohio and Kentucky Rivers.
II, 174, 42	<i>Hyodon amphiodon</i>	<i>Hyodon alosoides</i>	Lower parts of the Ohio.
II, 174, 42	<i>Hyodon heterurus</i>	<i>Hyodon tergisus</i>	Ohio River and tributary streams.
II, 175, 43	<i>Hyodon vernalis</i>	do.....	All over the Ohio and even at Pittsburgh.
II, 175, 43	<i>Hyodon clodalis</i> (misprint for <i>tergisus</i> , p. 88).	do.....	Ohio River as far as Pittsburgh.
II, 236, 46	<i>Mniulus dimemus</i>	<i>Notropis atherinoides</i>	Ohio River.
II, 236, 47	<i>Minnilus notatus</i>	<i>Pimephales notatus</i>	Do.
II, 237, 47	<i>Minnilus microstomus</i>	(?) <i>Notropis bienniis</i>	Kentucky River.
II, 237, 47	<i>Luxilus</i> or <i>Chrosomus erythro-gaster</i>	<i>Chrosomus erythrogaster</i>	Do.
II, 238, 48	<i>Luxilus chrysocephalus</i>	<i>Notropis cornutus</i>	Ohio, Kentucky, Cumberland, and Green Rivers, etc.
II, 238, 48	<i>Luxilus Kentuckiensis</i>	<i>Hybopsis kentuckiensis</i>	No stream mentioned.
II, 238, 49	<i>Luxilus interruptus</i>	<i>Notropis cornutus</i>	Ohio River.
II, 239, 49	<i>Semotilus dorsalis</i>	<i>Semotilus atromaculatus</i>	In the Kentucky and several other rivers.
II, 239, 49	<i>Semotilus cephalus</i>	do.....	Creeks of Kentucky, etc.
II, 239, 49	<i>Semotilus diplemia</i>	do.....	Kentucky River near Estill.
II, 239, 50	<i>Rutilus blagurus</i>	<i>Notropis cornutus</i>	Streams of Kentucky.
II, 240, 50	<i>Rutilus Anblops</i>	<i>Hybopsis amblops</i>	Falls of the Ohio.
II, 241, 51	<i>Rutilus melanurus</i>	<i>Moxostoma atreolum</i>	Ohio River.
II, 241, 51	<i>Rutilus anomalous</i>	<i>Campostoma anomalum</i>	Licking River, etc.
II, 242, 52	<i>Rutilus ruber</i>	<i>Notropis umbra</i>	Small streams which fall into the Elkhorn and Kentucky.
II, 299, 53	<i>Pimephales promelas</i>	<i>Pimephales promelas</i>	Pond near Lexington. (Collector, Wm. M. Clifford.)
II, 300, 54	<i>Catostomus anisurus</i>	<i>Moxostoma anisurum</i>	All over the Ohio and the larger streams as far as Pittsburgh.
II, 299 (i. e., 301), 55	<i>Catostomus bubalus</i>	<i>Ictiobus bubalus</i>	Ohio River.
II, 301, 56	<i>Catostomus carpio</i>	<i>Carpiodes carpio</i>	Falls of the Ohio.
II, 303, 56	<i>Catostomus vellifer</i>	<i>Carpiodes vellifer</i>	Ohio River as far as Pittsburgh.
II, 303, 57	<i>Catostomus xanthopus</i>	<i>Hypentelium nigricans</i>	Below the Falls of the Ohio.
II, 304, 57	<i>Catostomus melanops</i>	<i>Minytrema melanops</i>	Falls of the Ohio.
II, 304, 58	<i>Catostomus melanotus</i>	<i>Campostoma anomalum</i>	Do.
II, 305, 59	<i>Catostomus erythrus</i>	<i>Moxostoma aureolum</i>	Ohio, Kentucky, Cumberland, and Tennessee Rivers, etc.
II, 305, 59	<i>Catostomus flexuosus</i>	<i>Catostomus commersonii</i>	Most common species in Kentucky, in all the streams and ponds.
II, 306, 60	<i>Catostomus duquesni</i>	<i>Placopharynx duquesni</i>	Ohio River as far as Pittsburgh.
II, 306, 60	<i>Catostomus elongatas</i>	<i>Cycleptus elongatus</i>	Do.
II, 355, 61	<i>Cycleptus nigrescens</i>	do.....	Do.
II, 356, 62	<i>Pimelodus maculatus</i>	<i>Ictalurus punctatus</i>	Do.
II, 357, 63	<i>Pivelodus cerulescens</i>	do.....	Lower part of the Ohio River.
II, 357, 63	<i>Pimelodus pallidus</i>	do.....	Channels or deeper parts of the Ohio River.
II, 358, 63	<i>Pimelodus pallidus</i> var. <i>Marginata</i>	do.....	Do.
II, 358, 64	<i>Pimelodus pallidus</i> var. <i>Lateralis</i>	do.....	Do.
II, 358, 64	<i>Pimelodus pallidus</i> var. <i>Leucoptera</i>	do.....	Do.
II, 358, 64	<i>Pimelodus argyrus</i>	do.....	No stream mentioned.
II, 358, 64	<i>Pimelodus viscosus</i>	<i>Leptops olivaris</i>	Falls of the Ohio.
II, 358, 64	<i>Pimelodus nebulosus</i>	<i>Ameiurus nebulosus</i>	No stream mentioned.
II, 359, 65	<i>Pimelodus cupreus</i>	<i>Ameiurus natalis</i>	Ohio River as far as Pittsburgh.
II, 359, 65	<i>Pimelodus lividus</i>	do.....	No stream mentioned.
II, 360, 66	<i>Pimelodus melas</i>	<i>Ameiurus melas</i>	Do.

Volume and page.	Species as recorded.	Present identification.	Locality.
II, 360, 66	<i>Pimelodus xanthocephalus</i>	<i>Ameiurus melas</i>	Ohio and Kentucky Rivers, etc.
II, 360, 66	<i>Pimelodus limosus</i>	<i>Leptops olivaris</i>	Muddy streams and near muddy banks of large rivers.
II, 362, 68	<i>Noturus flavus</i>	<i>Noturus flavus</i>	Falls of the Ohio.
II, 362, 68	<i>Hypentelium macropteron</i>	<i>Catostomus nigricans</i>	Do.
III, 165, 69	<i>Sarchirus vittatus</i>	<i>Lepisosteus osseus</i>	Lower parts of the Ohio and at the Falls.
III, 166, 70	<i>Esox vittatus</i>	<i>Lucius lucius</i>	Ohio River as far up as Pittsburgh.
III, 167, 71	<i>Esox salmoneus</i>	<i>Lucius ohioensis</i>	Ohio River.
III, 168, 72	<i>Lepisosteus platostomus</i>	<i>Lepisosteus platostomus</i>	Ohio, Tennessee, and Cumberland Rivers, etc.
III, 169, 73	<i>Lepisosteus albus</i>	do.....	Ohio River.
III, 169, 74	<i>Lepisosteus oxypurus</i>	<i>Lepisosteus osseus</i>	Do.
III, 171, 74	<i>Lepisosteus longirostris</i>	do.....	Muskingum River.
III, 171, 75	<i>Lepisosteus ferox</i>	<i>Lepisosteus tristoechus</i>	Lower parts of the Ohio.
III, 172, 76	<i>Litholepsis adamantinus</i>	do.....	Ohio River as far up as the Falls.
III, 245, 77	<i>Anguilla laticauda</i>	<i>Anguilla chrysypa</i>	Ohio River.
III, 245, 78	<i>Anguilla atherina</i>	do.....	Tennessee and Cumberland Rivers, etc.
III, 245, 78	<i>Anguilla xanthomelas</i>	do.....	Ohio River as far up as Pittsburgh.
III, 246, 78	<i>Anguilla lutea</i>	do.....	Cumberland, Green, and Licking Rivers, etc.
III, 247, 79	<i>Accipenser maculosus</i>	<i>Acipenser rubicundus</i>	Ohio River as far up as Pittsburgh.
III, 247, 80	<i>Accipenser platyrhynchus</i>	<i>Scaphirhynchus platyrhynchus</i>	Cumberland River and the Ohio as far up as Pittsburgh.
III, 248, 80	<i>Acipenser serotimus</i>	<i>Acipenser rubicundus</i>	Ohio and Kentucky Rivers.
III, 248, 81	<i>Acipenser ohioensis</i>	do.....	Ohio River as far up as Pittsburgh.
III, 250, 82	<i>Polyodon folium</i>	<i>Polyodon spathula</i>	Ohio River, etc. (Seen at the Falls in September, 1818.)
III, 251, 83	<i>Planirostra edentula</i>	do.....	Ohio River as far up as Pittsburgh.
III, 251, 84	<i>Petromyzon nigrum</i>	<i>Lampetra wilderi</i>	Do.
85	<i>Pegedichis ictalops</i>	<i>Cottus ictalops</i>	Near Lexington, Ky.
85	<i>Etheostoma fontinalis</i>	<i>Etheostoma flabellare</i>	Springs and caves near Lexington, Ky.
86	<i>Semotilus (♀) notatus</i>	<i>Fundulus notatus</i>	Cumberland River and Little River, a branch of it. (Collector, Mr. Wilkins.)
86	<i>Sarchirus (♀) argenteus</i>	<i>Lepisosteus osseus</i>	Licking River, Slate Creek, etc. (Collector, Mr. Owings.)
86	<i>Acipenser lagenarius</i>	<i>Acipenser rubicundus</i>	Ohio River.

1832. C. S. RAFINESQUE.

Atlantic Journal and Friend of Knowledge, vol. I, no. 1, Philadelphia, spring of 1832.

On page 20 of this publication, in article No. 15, entitled "Extracts from A Second Series of Zoological Letters written to Baron Cuvier of Paris, by Prof. Rafinesque in 1831," Rafinesque describes "a large and beautiful new catfish from the River Tennessee discovered in 1823," which he calls *Pimelodus lutescens*. The species is evidently the same as *Ictalurus punctatus* described by Rafinesque in 1818 from the Ohio.

1845. D. H. STORER.

Descriptions of species of fishes received, together with drawings, from Mr. Charles A. Hentz, of Florence, Ala. <Proc. Bost. Soc. Nat. Hist., vol. II, 1845, pp. 48, 49, 51.

In this short paper, read July 2 and 16, 1845, Dr. Storer gives descriptions of seven species of fishes, four of which were based on specimens collected by Mr. Hentz at Florence, Ala., presumably from the Tennessee River or its tributaries, as follows: *Leuciscus obesus* (= *Notropis cornutus*), *Etheostoma tessellata*, *Etheostoma cinerea*, and *Pæcilia olivacea* (= *Fundulus notatus*).

1846. DAVID HUMPHREYS STORER.

A Synopsis of the Fishes of North America. <Memoirs of the American Academy. Communicated to the meeting of the American Naturalists, at New Haven, April 3, 1845.

In this paper Dr. Storer recorded a few fishes from the Tennessee-Kentucky region chiefly on the authority of Rafinesque as follows:

Page.	Species as recorded.	Present identification.	Locality.
272	<i>Etheostoma tessellata</i>	<i>Etheostoma tessellata</i>	Florence, Ala. Caught in running water.
273	<i>Etheostoma cinerea</i>	<i>Etheostoma cinereum</i>	Florence, Ala. Caught in deep, still water, when fishing for perch.
292	<i>Pomotis vulgaris</i>	<i>Eupomotis gibbosus</i>	Common in the rivers, creeks, and ponds in Kentucky (Rafinesque).
294	<i>Pomotis macrochira</i>	<i>Lepomis macrochirus</i>	Tributaries of the Ohio (Rafinesque).
404	<i>Pimelodus cupreus</i>	<i>Ameiurus natalis</i>	Ohio River and its tributaries (Rafinesque).
404	<i>Pimelodus limosus</i>	<i>Leptops olivaris</i>	Ohio River (Rafinesque).
405	<i>Pimelodus xanthocephalus</i>	<i>Ameiurus melas</i>	Ohio River and tributaries (Rafinesque).
406	<i>Noturus flavus</i>	<i>Noturus flavus</i>	Ohio River (Rafinesque).
408	<i>Leuciscus Americanus</i>	<i>Notropis cornutus</i>	Do.
410	<i>Leuciscus plargyrus</i>.....	.....do.....	Kentucky (Rafinesque).
410	<i>Leuciscus cephalus</i>	<i>Semotilus atromaculatus</i>	Do.
410	<i>Leuciscus kentuckiensis</i>	<i>Hybopsis kentuckiensis</i>	Do.
417	<i>Leuciscus croceus</i>	<i>Rhinichthys atronacus croceus</i>	Alabama.
417	<i>Leuciscus prolixus</i>	<i>Campostoma anomalum</i>	Do.
418	<i>Leuciscus obesus</i>	<i>Notropis cornutus</i>	Florence, Ala.
418	<i>Pimephales promelas</i>	<i>Pimephales promelas</i>	Kentucky; Ohio (Rafinesque).
424	<i>Catostomus anisurus</i>	<i>Moxostoma anisurum</i>	Ohio and most of its tributaries (Rafinesque).
424	<i>Catostomus melanops</i>	<i>Minytrema melanops</i>	Ohio River (Rafinesque).
424	<i>Catostomus bubalus</i>	<i>Ictiobus bubalus</i>	Ohio and its tributaries (Rafinesque).
428	<i>Exoglossum macropterum</i>	<i>Hypentelium nigricans</i>	Ohio River (Rafinesque).
430	<i>Poecilia olivacea</i>	<i>Fundulus notatus</i>	Florence, Ala.
430	<i>Poecilia catenata</i>	<i>Fundulus catenatus</i>	Do.
436	<i>Amblyopsis spelæus</i>	<i>Amblyopsis spelæus</i>	Mammoth Cave, Ky. (De Kay).
466	<i>Lepisosteus platostomus</i>	<i>Lepisosteus platostomus</i>	Ohio River (Rafinesque).

1854. I. AGASSIZ.

Notice of a Collection of Fishes from the Southern Bend of the Tennessee River, Alabama. <Am. Jour. Sci. and Arts, vol. xvii, second series, 1854, pp. 297-308 (March), and 353-365 (May).

Speaking of the collection on which this paper was based, Prof. Agassiz said: "The only information we have at present upon the fishes of the Tennessee River has been published by Dr. D. H. Storer, who mentions nine species from the vicinity of Florence, Ala., in 'The Proceedings of the Boston Society of Natural History for 1845,' and of which short descriptions appeared in his 'Synopsis of the Fishes of North America,' in 1846. Having lately received a collection of not less than 33 species from the same water system brought together by the untiring efforts of Dr. Newman, of Huntsville, who has most kindly placed them in my hands for description, it seems desirable that an early notice of the general character of the ichthyological fauna of that region should be published, to serve as a standard of comparison with the fishes of the other western and southern rivers in the study of the geographic distribution." All the specimens were from Huntsville, Ala., presumably from the Tennessee River. The list follows:

Page.	Species as recorded.	Present identification.	Local name.
298	<i>Pomoxis annularis</i>	<i>Pomoxis annularis</i>	Speckled perch; white perch.
298	<i>Grystes nobilis</i>	<i>Micropterus salmoides</i>	Trout.
299	<i>Ambloplites ichtheloides</i>	<i>Ambloplites rupestris</i>	Goggle-eyed perch; black perch.
300	<i>Calliurus punctulatus</i>	<i>Chaenobryttus gulosus</i>	Black perch; goggle-eye.
301	<i>Pomotis sanguinolentus</i>	<i>Lepomis megalotis</i>	Sun perch.
302	<i>Pomotis inscriptus</i>.....	.....do.....	
302	<i>Pomotis notatus</i>	<i>Eupomotis heros</i>	Pond perch.
302	<i>Pomotis incisor</i>	<i>Lepomis pallidus</i>	Do.
302	<i>Pomotis obscurus</i>.....	.....do.....	Do.
303	<i>Pomotis bombifrons</i>	<i>Lepomis megalotis</i>	
303	<i>Pomotis pallidus</i>	<i>Eupomotis pallidus</i>	
305	<i>Hyostoma Newmanii</i>	<i>Diplesion blienioides</i>	"Salmon."
307	<i>Ambodon concinnus</i>	<i>Aplodinotus grunniens</i>	Drum.
308	<i>Esox crassus</i>	<i>Lucius reticulatus</i>	Pike.
353	<i>Hydrargyra catenata</i>	<i>Fundulus catenatus</i>	
353	<i>Zygonectes olivaceus</i>	<i>Fundulus notatus</i>	
355	<i>Carpiodes Urus</i>	<i>Ictiobus urus</i>	
356	<i>Catostomus communis</i>	<i>Catostomus commersonii</i>	Fine-scaled sucker.
356	<i>Catostomus nigricans</i>	<i>Hypentelium nigricans</i>	Hog sucker.
356	<i>Catostomus Duquesnii</i>	<i>Moxostoma aureolum</i>	May sucker.
356	<i>Catostomus melanops</i>	<i>Minytrema melanops</i>	Do.
357	<i>Rhinichthys obtusus</i>	<i>Rhinichthys atronasmus</i>	Minnow.
357	<i>Chondrostoma prolixum</i>	<i>Campostoma anomalum</i>	Do.
358	<i>Hybopsis gracilis</i>	<i>Hybopsis amblops</i>	
359	<i>Chrosomus erythrogaster</i>	<i>Chrosomus erythrogaster</i>	
359	<i>Stilbe obesus</i>	<i>Notropis cornutus</i>	Hickory shad; gizzard shad.
359	<i>Hypsilepis gibbosus</i>	<i>Notropis cornutus</i> (?).....	Silversides.
359	<i>Leuciscus croceus</i>	<i>Rhinichthys atronasmus croceus</i>	
360	<i>Lepidosteus platostomus</i>	<i>Lepisosteus platostomus</i>	Gar.
361	<i>Amia calva</i>	<i>Amia calva</i>	Scaly cat; carp. Found in mill ponds.
361	<i>Pimelodus cærulescens</i>	<i>Ictalurus punctatus</i>	Channel cat.
361	<i>Pimelodus Catus</i>	<i>Ameiurus natalis</i>	Mud cat.
361	<i>Acipenser rubricundus</i>	<i>Acipenser rubricundus</i>	Sturgeon.
361	<i>Acipenser maculosus</i>.....	.....do.....	Do.

1867. E. D. COPE.

Description of a new genus of Cyprinoid Fishes from Virginia. <Proc. Acad. Nat. Sci. Phila., 1867, pp. 95-97.

This paper contains a description of *Phenacobius wanops* from the Holston River near Saltville, Va.

1867a. E. D. COPE.

On the Genera of Fresh-water Fishes *Hypsilepis* Baird and *Photogenis* Cope, their Species and Distribution. <Proc. Acad. Nat. Sci. Phila., 1867, pp. 156-166.

In this paper Prof. Cope records the following species from the Tennessee and Cumberland River Basins:

Page.	Species as recorded.	Present identification.	Locality.
158	<i>Hypsilepis cornutus</i>	<i>Notropis cornutus</i>	Tennessee River.
159	<i>Hypsilepis cornutus frontalis</i>.....	.....do.....	Holston River.
160	<i>Hypsilepis coccogenis</i>	<i>Notropis coccogenis</i>	"It occurs in abundance in the clear and often rapid creeks that flow into the North and Middle Forks of the Holston River in Virginia."
160	<i>Hypsilepis galacturus</i>	<i>Notropis galacturus</i>	"Abundant in the tributaries of the Holston River in Virginia."
165	<i>Photogenis leuciodus</i>	<i>Notropis leuciodus</i>	Tributaries of the Holston.
165	<i>Photogenis telescopus</i>	<i>Notropis telescopus</i>	"All the rapid streams tributary to the Holston River in Virginia."

1869. E. D. COPE.

On the Distribution of Fresh-water Fishes in the Alleghany Region of Southwestern Virginia. <Jour. Acad. Nat. Sci. Phila., vol. VI, sec. ser., pt. 3, Jan., 1869, pp. 207-247.

The collections on which this paper was based were made by Prof. Cope in July to October, 1867, during which period he resided in the region of the headwaters of the James, Roanoke, Kanawha, and Tennessee Rivers. A considerable portion of October was spent at Saltville, Smyth County, Va., with his friend William Alex. Stuart, at that

time one of the proprietors of the salt wells and furnaces at that place and who materially assisted Prof. Cope in making the collections.

From Saltville as headquarters visits were made to the North and Middle Forks of the Holston and most of the nearby tributaries, including Bear, Hungrymother, and Chilhowie Creeks.

Only the species recorded by Prof. Cope from the Tennessee Basin are included in the following tables:

Page.	Species as recorded.	Present identification.	Locality.
211	<i>Cottogaster aurantiacus</i>	<i>Hyposomus aurantiacus</i>	Holston River, Va.
211	<i>Percina caprodes</i>	<i>Percina caprodes</i>	North Fork Holston River, Saltville, Va.
212	<i>Pæcilichthys zonalis</i>	<i>Etheostoma zonale</i>	Do.
213	<i>Pæcilichthys flabellatus</i>	<i>Etheostoma flabellare</i>	Do.
214	<i>Boleosoma olmstedii</i>	<i>Boleosoma nigrum olmstedii</i>	Do.
215	<i>Hystoma blennioperca</i>	<i>Diplesion blennioides</i>	Do.
215	<i>Hystoma simoterum</i>	<i>Ulocentra simotera</i>	Do.
216	<i>Micropterus fasciatus</i>	<i>Micropterus dolomieu</i>	Do.
217	<i>Ambloplites rupestris</i>	<i>Ambloplites rupestris</i>	Do.
225	<i>Lepomis inscriptus</i>	<i>Lepomis megalotis</i>	Do.
225	<i>Uranidea carolinæ</i>	<i>Cottus ictalops</i>	Cold spring creeks of the southern Allegheny region.
226	<i>Ceraticthys hyalinus</i>	<i>Hybopsis amblopi</i>	North Fork Holston River, Saltville, Va.
226	<i>Ceraticthys biguttatus</i>	<i>Hybopsis kentuckiensis</i>	Do.
227	<i>Ceraticthys monacus</i>	<i>Hybopsis monacus</i>	Do.
228	<i>Rhinichthys lunatus</i>	<i>Rhinichthys atronasus</i>	Do.
228	<i>Phenacobius uranops</i>	<i>Phenacobius uranops</i>	Do.
229	<i>Hypsilepis cornutus frontalis</i>	<i>Notropis cornutus frontalis</i>	Do.
229	<i>Hypsilepis coccogenis</i>	<i>Notropis coccogenis</i>	Do.
229	<i>Hypsilepis galacturus</i>	<i>Notropis galacturus</i>	Do.
229	<i>Photogenis telescopus</i>	<i>Notropis telescopus</i>	Do.
229	<i>Photogenis leuciodus</i>	<i>Notropis leuciodus</i>	Do.
231	<i>Hybopsis spectrunculus</i>	<i>Notropis spectrunculus</i>	Bear Creek, Smyth County, Va., and probably Hungrymother and Chilhowie Creeks, adjacent tributaries of Middle Fork of Holston River.
231	<i>Hybopsis rubricroceus</i>	<i>Notropis rubricroceus</i>	Bear Creek, Smyth County, Va., and probably Hungrymother and Chilhowie Creeks, adjacent tributaries of Middle Fork of Holston River, and in Tumbling Creek, tributary to North Fork of Holston River.
232	<i>Hybopsis lacertosus</i>	<i>Notropis lacertosus</i>	Bear Creek, tributary to Middle Fork of Holston River.
233	<i>Alburnellus micropteryx</i>	<i>Notropis micropteryx</i>	Holston River.
235	<i>Campostoma anomalum</i>	<i>Campostoma anomalum</i>	Tributaries of the Holston.
236	<i>Teretulus duquesnei</i>	<i>Moxostoma aureolum</i>	Holston River.
236	<i>Catostomus nigricans</i>	<i>Hypentelium nigricans</i>	Do.
236	<i>Catostomus communis</i>	<i>Catostomus commersonii</i>	Do.
238	<i>Fundulus catenatus</i>	<i>Fundulus catenatus</i>	Tributaries of the Holston.
238	<i>Salmo fontinalis</i>	<i>Salvelinus fontinalis</i>	Do.
238	<i>Lepidosteus huronensis</i>	<i>Lepisosteus osseus</i>	Holston River at Saltville.
239	<i>Petromyzon sp (?)</i>	<i>Ichthyomyzon concolor</i>	Upper waters of Holston River.

1870. E. D. COPE.

On some *Etheostomine* Perch from Tennessee and North Carolina. <Proc. Am. Philos. Soc. Phila., vol. XI, 1870 (Jan. 7), pp. 261-270.

In this paper Prof. Cope recorded the following species from the Tennessee and Cumberland Rivers:

Page.	Species as recorded.	Present identification.	Locality.
262	<i>Etheostoma blennioides</i>	<i>Diplesion blennioides</i>	Headwaters of the Cumberland River, Campbell County, Tenn.
262	<i>Cottogaster aurantiacus</i>	<i>Hypohomus aurantiacus</i>	French Broad River, Madison County, N. C.
262	<i>Percina caprodes</i>	<i>Percina caprodes</i>	South Fork of the Cumberland River, Campbell County, Tenn.
263	<i>Pæcilichthys zonalis</i>	<i>Etheostoma zonale</i>	Tributary of the French Broad River, Madison County, N. C.
264	<i>Pæcilichthys sanguifluus</i>	<i>Etheostoma maculatum</i>	Headwaters South Fork of Cumberland River in Tennessee.
265	<i>Pæcilichthys camurus</i>	<i>Etheostoma camurum</i>	Headwaters of the Cumberland River in Tennessee.
266	<i>Pæcilichthys vulneratus</i>	<i>Etheostoma vulneratum</i>	Warm Springs Creek, tributary of the French Broad River, Madison County, N. C.
267	<i>Pæcilichthys rufilineatus</i>	<i>Etheostoma rufilineatum</i>	Do.
268	<i>Pæcilichthys œruleus</i>	<i>Etheostoma œruleum</i>	South Fork of the Cumberland River, Tenn.
270	<i>Hystoma cymatogrammum</i>	<i>Diplesion blennioides(?)</i>	Head of the Cumberland River, Tenn., also French Broad River, N. C.
270	<i>Hystoma simoterum</i>	<i>Ulocentra simoterum</i>	Tributary of Clinch River, Tenn.

1870. AUG. DUMÉRII.

Hist. Nat. des Poiss. ou Ichth. Gen., t. second, Ganoïdes, Dipnés, Lophobranches, pp. 1-624, 1870.

Only three species from the Ohio Basin are mentioned in this work.

Page.	Species as recorded.	Present identification.	Locality.
124	<i>Acipenser (Huso) parasimos</i>	<i>Acipenser rubicundus</i>	Huntsville, Ala.
143	<i>Acipenser (Huso) Rafinesquii</i>	do.....	Ohio River.
229	<i>Acipenser (Antaceus) Cincinnatii</i>	do.....	Ohio River at Cincinnati.

1872. F. W. PUTNAM.

The Blind Fishes of Mammoth Cave and their allies. <American Naturalist, vol. VI, no. 1, January, 1872, pp. 6-30, pls. 1, 2.

In this article Prof. Putnam states that Prof. Cope obtained specimens of *Amblyopsis spelæus* from Wyandotte Cave and from wells in its vicinity, that there is in the Museum of Comparative Zoology a specimen labeled "from a well near Lost River, Orange County, Ind.," and that he has examined a number of specimens from Mammoth Cave. He also refers to the type specimen of *Typhlichthys subterraneus* which was obtained by J. E. Younglove, Esq., "from a well near Bowling Green, Ky.," and further states that he has examined of this species seven specimens collected in Mammoth Cave by Mr. Alpheus Hyatt in September, 1859; one from Moulton, Lawrence County, Ala., presented by Mr. Thomas Peters; and one from Lebanon, Wilson County, Tenn., presented by Mr. J. M. Safford. This paper also contains the original description of *Chologaster agassizii*, based on a specimen from a well in Lebanon, Tenn. Moulton is in the Tennessee Basin, while Lebanon is in the Cumberland Basin.

1876. DAVID STARR JORDAN.

Manual of the Vertebrates of the Northern United States, Including the District East of the Mississippi River, and North of North Carolina and Tennessee, Exclusive of Marine Species. By David Starr Jordan, M. S., M. D., professor of Natural History in Northwestern Christian University and in Indiana State Medical College. Chicago: Jansen, McClurg & Co. 1876, pp. 1-342.

In this volume the following species are mentioned from specific streams in the region covered by the present paper:

Page.	Species as recorded.	Present identification.	Locality.
224	<i>Diplesium blennioides</i>	<i>Diplesion blennioides</i>	Holston River.
225	<i>Stizostedion salmoneum</i>	<i>Stizostedion vitreum</i>	Ohio River.
236	<i>Ichthelis incisor obscurus</i>	<i>Lepomis pallidus</i>	Tennessee River.
237	<i>Ichthelis bombifrons</i>	<i>Lepomis megalotis</i>	Do.
240	<i>Pomotis notatus</i>	<i>Eupomotis heros</i>	Headwaters of Tennessee River.
240	<i>Pomotis pallidus</i>	<i>Eupomotis pallidus</i>	Tennessee River.
242	<i>Haplodotus concinnus</i>	<i>Aplodinotus grunniens</i>	Do.
252	<i>Zygonectes catenatus</i>	<i>Fundulus catenatus</i>	Do.
257	<i>Amblyopsis spelæus</i>	<i>Amblyopsis spelæus</i>	Subterranean streams of Kentucky, Indiana, Mammoth Cave, Wyandotte Cave, etc.
257	<i>Typhlichthys subterraneus</i>	<i>Typhlichthys subterraneus</i>	Subterranean streams in Kentucky, Tennessee, and Alabama.
257	<i>Chologaster agassizii</i>	<i>Chologaster agassizii</i>	Subterranean streams in Tennessee and Kentucky.
260	<i>Salmo fontinalis</i>	<i>Salvelinus fontinalis</i>	French Broad River.
266	<i>Pomolobus chrysochloris</i>	<i>Pomolobus chrysochloris</i>	Ohio River.
266	<i>Dorosoma notatum</i>	<i>Dorosoma cepedianum</i>	Do.
280	<i>Ceratichthys monachus</i>	<i>Hybopsis monachus</i>	Holston River.
281	<i>Phenacobius uranops</i>	<i>Phenacobius uranops</i>	Do.
282	<i>Hybopsis spectrunculus</i>	<i>Notropis spectrunculus</i>	Do.
283	<i>Hybopsis rubricroceus</i>	<i>Notropis rubricroceus</i>	Upper Tennessee River.
283	<i>Hemitremia vittata</i>	<i>Leuciscus flammeus</i>	Headwaters of Tennessee and Cumberland Rivers.
286	<i>Lythrurus ardens</i>	<i>Notropis umbratilis ardens</i>	Cumberland River.
287	<i>Luxilus coccogenis</i>	<i>Notropis coccogenis</i>	Headwaters of Tennessee River.
288	<i>Photogenis telescopus</i>	<i>Notropis telescopus</i>	Holston River.
289	<i>Photogenis leuciodus</i>	<i>Notropis leuciodus</i>	Do.
290	<i>Minnilus micropteryx</i>	<i>Notropis micropteryx</i>	Clinch River.
297	<i>Carpiodes velifer</i>	<i>Carpiodes velifer</i>	Ohio River.

1877. DAVID STARR JORDAN.

A Partial Synopsis of the Fishes of Upper Georgia; with supplementary papers on Fishes of Tennessee, Kentucky, and Indiana, by David Starr Jordan, M. D., Ph. D., professor of natural history in Butler University, Indianapolis, Ind. <Ann. N. Y. Lyc. Nat. Hist., vol. xi, 1877 (June), pp. 307-377.

As Dr. Jordan stated in the introduction, "The material on which the present paper is based was obtained by the writer and his assistant, Mr. Charles H. Gilbert, during the past summer (1876), in a month's residence and constant field work at Rome, Ga.; a week's seining in the South Fork of the Ocmulgee River at Flat Rock, Dekalb County, Ga.; and a day's work in tributaries of the Chattahoochee River near Atlanta. * * *. A visit to Powells River and other tributaries of Clinch River near Cumberland Gap, Tenn., and to the French Broad and Big Pigeon Rivers near Newport, Tenn., enabled us to make considerable collections." A few species were collected in Rockcastle River and tributaries, in Rockcastle and Laurel Counties, in southeast Kentucky.

The following species were listed, all on page 370, from "Powells River and other tributaries of Clinch River near Cumberland Gap and French Broad and Big Pigeon Rivers near Newport, Tenn.":

Species as recorded.	Present identification.
<i>Alvordius aspro</i>	<i>Hadropterus aspro</i> .
<i>Diplesium simoterum</i>	<i>Hadropterus simotera</i> .
<i>Micropterus salmoides</i>	<i>Micropterus salmoides</i> .
<i>Ambloplites rupestris</i>	<i>Ambloplites rupestris</i> .
<i>Haplodonotus grunniens</i>	<i>Aplodinotus grunniens</i> .
<i>Potamocottus</i> sp. (<i>carolinæ</i> ?)	<i>Cottus ictalops</i> .
<i>Xenisma catenata</i>	<i>Fundulus catenatus</i> .
<i>Campostoma anomalum prolixum</i>	<i>Campostoma anomalum</i> .
<i>Nocomis biguttatus</i>	<i>Hybopsis kentuckiensis</i> .
<i>Nocomis amblops</i>	<i>Hybopsis amblops</i> .
<i>Phenacobius uranops</i>	<i>Phenacobius uranops</i> .
<i>Luxilus cornutus</i>	<i>Notropis cornutus</i> .
<i>Luxilus coccogenis</i>	<i>Notropis coccogenis</i> .
<i>Luxilus galacturus</i>	<i>Notropis galacturus</i> .
<i>Nototropis photogenis</i>	<i>Notropis photogenis</i> .
<i>Nototropis dinemus</i>	<i>Notropis atherinoides</i> .
<i>Catostomus teres</i>	<i>Catostomus commersonii</i> .
<i>Catostomus nigricans</i>	<i>Hypentelium nigricans</i> .
<i>Erimyzon oblongus</i>	<i>Erimyzon sucetta</i> .
<i>Maxostoma duquesnei</i>	<i>Moxostoma aureolum</i> .
<i>Ichthæurus punctatus</i>	<i>Ictalurus punctatus</i> .
<i>Pelodichthys olivaris</i>	<i>Leptops olivaris</i> .
<i>Noturus eleutherus</i>	<i>Schilbeodes eleutherus</i> .

The following species were listed on page 373 from Rockcastle River and tributaries in Rockcastle and Laurel Counties, Ky.:

Species as recorded.	Present identification.
<i>Etheostoma flabellare</i>	<i>Etheostoma flabellare</i> .
<i>Boleosoma maculatum</i>	<i>Boleosoma nigrum</i> .
<i>Diplesium simoterum</i>	<i>Ulocentra simotera</i> .
<i>Alvordius aspro</i>	<i>Hadropterus aspro</i> .
<i>Percina caprodes</i>	<i>Percina caprodes</i> .

Species as recorded.	Present identification.
<i>Micropterus salmoides</i>	<i>Micropterus salmoides</i> .
<i>Micropterus pallidus</i>	Do.
<i>Ambloplites rupestris</i>	<i>Ambloplites rupestris</i> .
<i>Xenotis megalotis</i>	
<i>Campostoma anomalum</i>	<i>Campostoma anomalum</i> .
<i>Hyborhynchus notatus</i>	<i>Pimephales notatus</i> .
<i>Semotilus corporalis</i>	<i>Semotilus atromaculatus</i> .
<i>Nocomis biguttatus</i>	<i>Hybopsis kentuckiensis</i> .
<i>Phenacobius uranops</i>	<i>Phenacobius uranops</i> .
<i>Chrosomus erythrogaster</i>	<i>Chrosomus erythrogaster</i> .
<i>Luxilus cornutus</i>	<i>Notropis cornutus</i> .
<i>Luxilus galacturus</i>	<i>Notropis galacturus</i> .
<i>Lythrurus ardens</i>	<i>Notropis umbratilis lythrurus</i> .
<i>Hemitremia vittata</i>	<i>Leuciscus flammeus</i> .
<i>Nototropis dinemus</i>	<i>Notropis atherinoides</i> .
<i>Nototropis micropteryx</i>	<i>Notropis micropteryx</i> .
<i>Catostomus teres</i>	<i>Catostomus commersonii</i> .
<i>Catostomus nigricans</i>	<i>Hypentelium nigricans</i> .
<i>Erimyzon oblongus</i>	<i>Erimyzon sucetta</i> .
<i>Myxostoma duquesnii</i>	<i>Moxostoma aureolum</i> .
<i>Anguilla vulgaris</i>	<i>Anguilla chrisypa</i> .
<i>Pelodichthys</i> sp. (nov.?).....	<i>Leptops olivaris</i> .

1877a. DAVID S. JORDAN.

Notes on *Cottidæ*, *Etheostomatidæ*, *Percidæ*, *Centrarchidæ*, *Aphododeridæ*, *Umbridæ*, *Esocidæ*, *Dorysomatidæ*, *Cyprinidæ*, *Catostomidæ*, and *Hyodontidæ*, with revisions of the genera and descriptions of new or little known species. <Bull. U. S. Nat. Mus., no. 10, pp. 5-120, pls. 1-45, 1877.

In this paper the following species are recorded from the Tennessee and Cumberland Basins:

Page.	Species as recorded.	Present identification.	Locality.
10, 15	<i>Arlina atripinnis</i>	<i>Ulocentra simotera</i>	Tributary of Cumberland River near Nashville; collector, Prof. A. Winchell.
11	<i>Etheostoma squamiceps</i>	<i>Etheostoma squamiceps</i>	Russellville, Ky.; collector, Dr. Bebb.
15	<i>Diplesium newmani</i>	<i>Diplesium blennioides</i>	Tennessee River.
15	<i>Diplesium simoterum</i>	<i>Ulocentra simotera</i>	Cumberland and upper Tennessee Rivers.
16	<i>Nothonotus sanguifluus</i>	<i>Etheostoma maculatum</i>	Cumberland River.
17	<i>Etheostoma tessellata</i>	<i>Etheostoma tessellatum</i>	Florence, Ala.
17	<i>Etheostoma cinerea</i>	<i>Etheostoma cinereum</i>	Do.
21	<i>Eupomotis pallidus</i>	<i>Eupomotis pallidus</i>	Tennessee River.
23	<i>Xenotis sanguinolentus</i>	<i>Lepomis megalotis</i>	Do.
35	<i>Lepiopotomus bombifrons</i>	do.....	Do.
35	<i>Xystroplites notatus</i>	<i>Eupomotis heros</i>	Do.
42	<i>Xenotis inscriptus</i>	<i>Lepomis megalotis</i>	Do.
67	<i>Hyodon selenops</i>	<i>Hiodon selenops</i>	Tennessee River at Chattanooga and Cumberland River.
101	<i>Noturus eleutherus</i>	<i>Schilbeodes eleutherus</i>	French Broad River, Tenn.

1877. DAVID S. JORDAN and A. W. BRAYTON.

On *Lagochila*, a new genus of Catostomoid Fishes. <Proc. Acad. Nat. Sci. Phila., vol. 29, 1877, pp. 280-283.

This paper contains the original description of the genus *Lagochila* and its single species, *Lagochila lacera*, based on two specimens obtained by the writers in the summer of 1877 in Chickamauga Creek near Ringgold, Ga., and one in Elk River at Estill Springs, Tenn.

1878. DAVID S. JORDAN and ALEMBERT W. BRAYTON.

On the Distribution of the Fishes of the Alleghany Region of South Carolina, Georgia, and Tennessee, with Descriptions of New or Little Known Species. <Bull. U. S. Nat. Mus., no. 12, pp. 1-96, 1878.

This paper was based primarily on field work done and collections made by Drs. Jordan and Brayton, assisted by Charles H. Gilbert and a party of students from Butler University, during the summer of 1877, in various streams of South Carolina, Georgia, and Tennessee.

Collections were made in the Tennessee Basin in the following streams: Clinch River and tributaries in southwestern Virginia; Powell's River, Indian Creek, and Station Creek near Cumberland Gap; Holston River and various tributaries in southwestern Virginia; French Broad River at Newport, Tenn.; Big Pigeon River at Clifton, Wayne County, Tenn.; Swannanoa River at foot of Black Mountain, N. C.; Chickamauga Creek at Ringgold, Ga.; and Elk River and tributaries at Estill Springs, Franklin County, Tenn.

Collections were made in the Cumberland Basin in the following streams: Round-Stone River in Rockcastle County, Ky.; Rockcastle River near Livingston, Ky.; Big Laurel River in Laurel County, Ky.; Cumberland River about Pineville, Ky.; Yellow Creek near Cumberland Gap; Stone River near Murfreesboro, Tenn.

COLLECTIONS MADE IN VARIOUS STREAMS OF TENNESSEE AND CUMBERLAND BASINS.

TENNESSEE BASIN.

Page.	Species as recorded.	Present identification.	Locality.
57	<i>Potamocottus meridionalis</i>	<i>Cottus ictalops</i>	Chickamauga River; Cave Spring at Cumberland Gap; Holston River; French Broad River.
57	<i>Percina caprodes</i>	<i>Percina caprodes</i>	Generally abundant in clear streams.
58	<i>Alvordius maculatus</i>	<i>Hadropterus aspro</i>	Clinch River; French Broad River; Chickamauga Creek.
58	<i>Hadropterus aurantiacus</i>	<i>Hypophomus aurantiacus</i>	French Broad River (Cope).
58	<i>Diplesium blennioides</i>	<i>Diplesium blennioides</i>	Holston River; French Broad River; Chickamauga Creek.
58	<i>Diplesium simoterm</i>	<i>Ulocentra simotera</i>	Clinch River; Holston River.
58	<i>Boleosoma maculatum</i>	<i>Boleosoma nigrum</i>	Holston River.
58	<i>Nothonotus zonalis</i>	<i>Etheostoma zonale</i>	Holston and French Broad Rivers (Cope).
58	<i>Nothonotus vulneratus</i>	<i>Etheostoma vulneratum</i>	French Broad River at Warm Springs (Cope).
58	<i>Nothonotus rufilineatus</i>	<i>Etheostoma rufilineatum</i>	French Broad River (Cope).
59	<i>Pocillichthys jessiae</i>	<i>Etheostoma jessiae</i>	Chickamauga Creek at Ringgold, Ga.
59	<i>Etheostoma flabellare</i>	<i>Etheostoma flabellare</i>	Upper Tennessee in clear rapid streams.
59	(<i>Etheostoma</i>) <i>cinerea</i>	<i>Etheostoma cinereum</i>	Florence, Ala. (Storer).
59	(<i>Etheostoma</i>) <i>tessellata</i>	<i>Etheostoma tessellatum</i>	Tennessee River at Florence, Ala. (Storer).
60	<i>Micropterus pallidus</i>	<i>Micropterus salmoides</i>	Tennessee Basin.
60	<i>Stizostedion vitreum</i>	<i>Stizostedion vitreum</i>	French Broad River (Cope).
60	<i>Stizostedion salmoneum</i>	do.....	Do.
60	<i>Micropterus salmoides</i>	<i>Micropterus salmoides</i>	Tennessee River.
60	<i>Ambloplites rupestris</i>	<i>Ambloplites rupestris</i>	Tennessee Basin.
60	<i>Chaenobryttus gulosus</i>	<i>Chaenobryttus gulosus</i>	Lower Tennessee River.
60	<i>Lepiopomus pallidus</i>	<i>Lepomis pallidus</i>	Tennessee Basin.
60	<i>Lepiopomus obscurus</i>	do.....	Huntsville, Ala. (Agassiz).
60	(<i>Lepiopomus</i>) <i>bombifrons</i>	<i>Lepomis megalotis</i>	Do.
61	<i>Xenotis sanguinolentus</i>	do.....	Tennessee River at Huntsville (Agassiz).
61	<i>Xenotis inscriptus</i>	do.....	Tennessee River at Huntsville (Agassiz); also upper waters of the Tennessee (Cope).
61	<i>Eupomotis pallidus</i>	<i>Eupomotis pallidus</i>	Huntsville, Ala. (Agassiz).
61	<i>Xystroplites notatus</i>	<i>Eupomotis heros</i>	Huntsville (Agassiz); upper waters of the Tennessee (Cope).
61	<i>Haplodonotus grunniens</i>	<i>Aplodinotus grunniens</i>	Tennessee Basin.
61	<i>Labidesthes sicculus</i>	<i>Labidesthes sicculus</i>	Coal Creek, a tributary of Clinch River (Cope).
62	<i>Xenisma catenatum</i>	<i>Fundulus catenatus</i>	Elk River; Clinch River; Holston River; Florence, Ala. (Storer).
62	<i>Zygonectes notatus</i>	<i>Fundulus notatus</i>	Florence, Ala. (Storer).
62	<i>Hyodon selenops</i>	<i>Hiodon selenops</i>	Tennessee River at Chattanooga.
62	<i>Pomolobus chrysochloris</i>	<i>Pomolobus chrysochloris</i>	Lower Tennessee.
63	<i>Dorosoma cepedianum</i>	<i>Dorosoma cepedianum</i>	Do.
63	<i>Salvelinus fontinalis</i>	<i>Salvelinus fontinalis</i>	Swannanoa River and all clear tributaries of the French Broad in western North Carolina; certain tributaries of the Holston in southwestern Virginia; headwaters of the Little Tennessee in Rabun County, Ga.

TENNESSEE BASIN—Continued.

Page.	Species as recorded.	Present identification.	Locality.
63	<i>Campostoma anomalum</i> var. <i>prolixum</i> .	<i>Campostoma anomalum</i>	Abundant everywhere in clear pools of Swannanoa River and elsewhere in basins of the Tennessee and Cumberland.
63	<i>Hyborhynchus notatus</i>	<i>Pimephales notatus</i>	Chickamauga Creek.
64	<i>Hydrophlox rubricroceus</i>	<i>Notropis rubricroceus</i>	Tributaries of the Holston (Cope).
64	<i>Hydrophlox lacertosus</i>	<i>Notropis lacertosus</i>	Holston River (Cope).
64	<i>Alburnops microstomus</i>	<i>Notropis microstomus</i>	Holston River (Cope). (?)
64	<i>Luxilus cornutus</i>	<i>Notropis cornutus</i>	Abundant in every stream examined.
64	<i>Luxilus coccogenis</i>	<i>Notropis coccogenis</i>	Do.
64	<i>Photogenis galacturus</i>	<i>Notropis galacturus</i>	Do.
64	<i>Notropis atherinoides</i>	<i>Notropis atherinoides</i>	Tributaries of Clinch River.
65	<i>Notropis micropteryx</i>	<i>Notropis micropteryx</i>	Tributaries of Clinch and Holston.
65	<i>Notropis photogenis</i>	<i>Notropis photogenis</i>	French Broad River.
65	<i>Notropis telescopus</i>	<i>Notropis telescopus</i>	Elk River.
65	<i>Notropis lirus</i>	<i>Notropis lirus</i>	Elk River; Chickamauga Creek.
65	<i>Phoxinus flammeus</i>	<i>Leuciscus flammeus</i>	Elk River.
66	<i>Gila estor</i>	<i>Leuciscus vandoisulus</i>	Elk River; Stone River.
67	<i>Notemigonus chrysoleucas</i>	<i>Abramis chrysoleucas</i>	Tennessee Basin.
67	<i>Phenacobius uranops</i>	<i>Phenacobius uranops</i>	Elk River; Chickamauga Creek; French Broad River.
67	<i>Rhinichthys obtusus</i>	<i>Rhinichthys atronasmus croceus</i>	Tennessee Basin.
67	<i>Ceraticthys monachus</i>	<i>Hybopsis monachus</i>	Chickamauga Creek.
67	<i>Ceraticthys dissimilis</i>	<i>Hybopsis dissimilis</i>	Elk River.
68	<i>Ceraticthys winchelli</i>	<i>Hybopsis amblops</i>	Tennessee River.
68	<i>Ceraticthys biguttatus</i>	<i>Hybopsis kentuckiensis</i>	Tributaries of the French Broad and the Clinch.
68	<i>Quassilabia lacera</i>	<i>Lagochila lacera</i>	Chickamauga Creek; Elk River.
68	<i>Myxostoma macrolepidotum</i> <i>duquesnei</i> .	<i>Moxostoma aureolum</i>	Holston, Clinch, and French Broad Rivers, and Chickamauga Creek.
69	<i>Placopharynx carinatus</i>	<i>Placopharynx duquesnii</i>	French Broad River.
69	<i>Erimyzon succetta</i>	<i>Erimyzon succetta</i>	Clinch River.
69	<i>Catostomus nigricans</i>	<i>Hypentelium nigricans</i>	Tennessee River.
69	<i>Catostomus commersoni</i>	<i>Catostomus commersonii</i>	Tennessee and Cumberland Basins.
69	<i>Ichthaelurus punctatus</i>	<i>Ictalurus punctatus</i>	Tennessee River.
70	<i>Amiurus natalis</i> var. <i>cupreus</i> .	<i>Ameiurus natalis</i>	Do.
70	<i>Pelodichthys olivaris</i>	<i>Leptopis olivaris</i>	French Broad River.
70	<i>Noturus cleutherus</i>	<i>Schilbeodes cleutherus</i>	Big Pigeon River.
70	<i>Anguilla vulgaris</i>	<i>Anguilla chrysypa</i>	Tennessee River.
71	<i>Lepidosteus osseus</i>	<i>Lepisosteus osseus</i>	Tennessee and Cumberland Rivers.
71	<i>Polyodon folium</i>	<i>Polyodon spathula</i>	Do.

CUMBERLAND BASIN.

73	<i>Potamocottus meridionalis</i>	<i>Cottus ictalops</i>	Cumberland River at Nashville.
73	<i>Percina caprodes</i>	<i>Percina caprodes</i>	Cumberland River.
73	<i>Alvordius maculatus</i>	<i>Hadropterus aspro</i>	Cumberland and Rockcastle Rivers at various points.
73	<i>Alvordius phoxocephalus</i>	<i>Hadropterus phoxocephalus</i>	Cumberland River at Nashville.
73	<i>Diplesium blennioides</i>	<i>Diplesion blennioides</i>	Cumberland and Stone Rivers.
73	<i>Diplesium simotermum</i>	<i>Ulocentra simotera</i>	Rockcastle River.
75	<i>Boleosoma maculatum</i>	<i>Boleosoma nigrum</i>	Do.
75	<i>Etheostoma flabellare</i>	<i>Etheostoma flabellare</i>	Mountain tributaries of the Cumberland.
75	<i>Stizostedion salmoneum</i>	<i>Stizostedion vitreum</i>	Rockcastle River.
75	<i>Micropterus pallidus</i>	<i>Micropterus dolomieu</i>	Lower Cumberland River.
75	<i>Micropterus salmoides</i>	<i>Micropterus salmoides</i>	Do.
75	<i>Ambloplites rupestris</i>	<i>Ambloplites rupestris</i>	Cumberland River and tributaries.
76	<i>Apomotis cyanellus</i>	<i>Apomotis cyanellus</i>	Cumberland River at Nashville.
76	<i>Lepopomus pallidus</i>	<i>Lepomis pallidus</i>	Cumberland River.
76	<i>Lepopomus obscurus</i>.....	.....	Cumberland River near Nashville.
76	<i>Xenotis megalotis</i>	<i>Lepomis megalotis</i>	Cumberland River.
76	<i>Pomoxys nigromaculatus</i>	<i>Pomoxis sparoides</i>	Cumberland River at Nashville.
76	<i>Pomoxys annularis</i>	<i>Pomoxis annularis</i>	Do.
76	<i>Haplodnotus grunniens</i>	<i>Aplodnotus grunniens</i>	Cumberland River.
76	<i>Labidesthes sicculus</i>	<i>Labidesthes sicculus</i>	Stone River at Murfreesboro.
77	<i>Xenisma catenatum</i>	<i>Fundulus catenatus</i>	Streams about Nashville.
77	<i>Zygonectes notatus</i>	<i>Fundulus notatus</i>	Cumberland and Stone Rivers.
77	<i>Hyodon selenops</i>	<i>Hiodon selenops</i>	Cumberland River.
77	<i>Pomolobus chrysochloris</i>	<i>Pomolobus chrysochloris</i>	Lower Cumberland.
77	<i>Dorosom cepedianum heteraurum</i> .	<i>Dorosoma cepedianum</i>	Do.
77	<i>Campostoma anomalum</i>	<i>Campostoma anomalum</i>	Cumberland River and tributaries.
77	<i>Pimephales promelas</i>	<i>Pimephales promelas</i>	Tributaries of the Cumberland near Nashville.
78	<i>Hyborhynchus notatus</i>	<i>Pimephales notatus</i>	Cumberland River everywhere.
78	<i>Luxilus cornutus</i>	<i>Notropis cornutus</i>	Do.
78	<i>Photogenis galacturus</i>	<i>Notropis galacturus</i>	Do.
78	<i>Photogenis analostanus</i>	<i>Notropis whipplii</i>	Cumberland River at Nashville.
78	<i>Lythrurus ardens</i>	<i>Notropis umbratilis lythrurus</i>	Cumberland River everywhere.
78	<i>Notropis atherinoides</i>	<i>Notropis atherinoides</i>	Rockcastle River and other upper tributaries of the Cumberland.

CUMBERLAND BASIN—Continued.

Page.	Species as recorded.	Present identification.	Locality.
79	<i>Notropis micropteryx</i>	<i>Notropis micropteryx</i>	Rockcastle River.
79	<i>Notropis telescopus</i>	<i>Notropis telescopus</i>	Stone River at Murfreesboro.
79	<i>Hemitremia vittata</i>	<i>Leuciscus flammeus</i>	Big Laurel River.
79	<i>Gila estor</i>	<i>Leuciscus vandoisulus</i>	Stone River at Murfreesboro.
79	<i>Chrosomus erythrogaster</i>	<i>Chrosomus erythrogaster</i>	Tributaries of Rockcastle River.
79	<i>Notemigonus chrysoleucas</i>	<i>Abramis chrysoleucas</i>	Cumberland Basin in sluggish waters.
79	<i>Phenacobius uranops</i>	<i>Phenacobius uranops</i>	Rockcastle River.
79	<i>Ceratichthys dissimilis</i>	<i>Hybopsis dissimilis</i>	Cumberland River at Nashville.
79	<i>Ceratichthys amblops</i>	<i>Hybopsis amblops</i>	Do.
79	<i>Ceratichthys biguttatus</i>	<i>Hybopsis kentuckiensis</i>	Cumberland River everywhere.
80	<i>Semotilus corporalis</i>	<i>Semotilus atromaculatus</i>	Rockcastle River.
80	<i>Myxostoma macrolepidotum duquesnei</i>	<i>Moxostoma aureolum</i>	Cumberland River.
80	<i>Erimyzon sucetta</i>	<i>Erimyzon sucetta</i>	Rockcastle River and Cumberland River at Nashville.
80	<i>Minytrema melanops</i>	<i>Minytrema melanops</i>	Cumberland River at Nashville.
80	<i>Catostomus nigricans</i>	<i>Hypentelium nigricans</i>	Cumberland River.
80	<i>Catostomus commersoni</i>	<i>Catostomus commersonii</i>	Do.
80	<i>Cycleptus elongatus</i>	<i>Cycleptus elongatus</i>	Cumberland River at Nashville.
80	<i>Carpiodes cutisanserinus</i>	<i>Carpiodes difformis</i>	Do.
81	<i>Ichthaelurus punctatus</i>	<i>Ictalurus punctatus</i>	Cumberland River.
81	<i>Amiurus natalis</i>	<i>Amiurus natalis</i>	Cumberland River at Nashville.
81	<i>Amiurus nigricans</i>	<i>Amiurus lacustris</i>	Falls of the Cumberland.
81	<i>Pelodichthys olivaris</i>	<i>Leptops olivaris</i>	Rockcastle River at Livingston and Cumberland River below the falls.
81	<i>Anguilla vulgaris</i>	<i>Anguilla chrysypa</i>	Cumberland River and Rockcastle River at mouth of Round Stone River.
81	<i>Lepisosteus osseus</i>	<i>Lepisosteus osseus</i>	Cumberland River at Nashville.
81	<i>Polyodon folium</i>	<i>Polyodon spathula</i>	Cumberland River.

1878. DAVID STARR JORDAN.

Manual of the Vertebrates of the Northern United States, Including the District East of the Mississippi River and North of North Carolina and Tennessee, Exclusive of Marine Species, second edition. Chicago, Jansen, McClurg & Co., 1878, pp. 1-407.

In this volume the following species are recorded from Kentucky and Tennessee:

Diplesium simoterum, Tennessee and Cumberland Rivers; *Ulocentra atripinnis*, Cumberland River; *Nothonotus vulneratus*, French Broad River; *Nothonotus rufilineatus*, French Broad River; *Pacilichthys jessiae* Jordan and Brayton, new species, Tennessee River (Chickamauga Creek at Ringgold, Ga.); *Lepi-opomus bombifrons*, Tennessee River; *Lepiopomus obscurus*, Cumberland and Tennessee Rivers; *Amblyopsis speleus*, subterranean streams of Kentucky and Indiana, Mammoth Cave, etc.; *Typhlichthys subterraneus*, subterranean streams of Kentucky, Tennessee, and Alabama; *Chologaster agassizi*, subterranean streams in Tennessee and Kentucky; *Hydon selanops*, Cumberland River; *Hybopsis lacer-tosus*, Tennessee River; *Hybopsis rubricroceus*, Tennessee River; *Luxilus coccogenis*, Tennessee River; *Luxilus galacturus*, Cumberland River; *Lythrurus ardens*, Cumberland River; *Notropis micropteryx*, Tennessee and Cumberland Rivers; *Notropis telescopus*, Tennessee River; *Chiola leucioda*, Tennessee River; *Phenacobius uranops*, Tennessee River; *Gila estor*, Cumberland and Tennessee Rivers; *Phoxinus flammeus* Jordan and Gilbert, new species, Elk River, Tennessee; *Hemitremia vittata*, Tennessee and Cumberland Rivers; *Ceratichthys monachus*, Tennessee River; *Noturus eleutherus*, French Broad River.

1878a. DAVID S. JORDAN.

A Synopsis of the Family Catostomidae. Bull. U. S. Nat. Mus., no. 12, pp. 97-230, 1878.

In this paper are a few references to species from Tennessee and Kentucky, as follows:

Quassilabia lacera (= *Lagochila lacera*), two specimens from Chickamauga Creek at Ringgold, Ga., and one from Elk River near Estill Springs, Tenn.; *Placopharynx carinatus* (= *Placopharynx duquesnii*), numerous specimens from the French Broad River at Wolf Creek and other localities in North Carolina; *Myxostoma macrolepidotum duquesnii* (= *Moxostoma aureolum*), Cumberland River, Tenn.; *Myxostoma velatum* (= *Moxostoma anisurum*), Chickamauga Creek and Clinch River; *Erimyzon sucetta*, Cumberland River; *Carpiodes cutisanserinus* (= *Carpiodes difformis*), Cumberland River.

1883. DAVID S. JORDAN and JOSEPH SWAIN.

List of Fishes Collected in the Clear Fork of the Cumberland, Whitley County, Ky., with descriptions of three new species. <Proc. U. S. Nat. Mus., vol. vi, 1883 (Nov. 27), pp. 248-251.

In May, 1883, Profs. Jordan and Swain, aided by a party of students from Indiana University, made a small collection of fishes from the Clear Fork of the Cumberland River and in its tributaries, Wolf Creek and Briar Creek, near Pleasant View, Whitley County, Ky.

The collection contained 23 species, of which 3 were described as new.

Page.	Species as recorded.	Present identification.	Locality.
248	<i>Ameiurus natalis</i>	<i>Ameiurus natalis</i>	Clear Fork of the Cumberland.
248	<i>Catostomus teres</i>	<i>Catostomus commersonii</i>	Do.
248	<i>Catostomus nigricans</i>	<i>Hypentelium nigricans</i>	Do.
248	<i>Moxostoma velatum</i>	<i>Moxostoma anisurum</i>	Do.
248	<i>Moxostoma macrolepidotum</i> <i>duquesnei</i>	<i>Moxostoma aureolum</i>	Do.
248	<i>Campostoma anomalum</i>	<i>Campostoma anomalum</i>	Do.
248	<i>Chrosomus erythrogaster</i>	<i>Chrosomus erythrogaster</i>	Do.
248	<i>Hyborhynchus notatus</i>	<i>Pimephales notatus</i>	Do.
248	<i>Ericymba buccata</i>	<i>Ericymba buccata</i>	Do.
249	<i>Minnilus diplæmius</i>	<i>Notropis umbratilis lythrurus</i>	Do.
249	<i>Minnilus cornutus</i>	<i>Notropis cornutus</i>	Do.
249	<i>Hemitremia vittata</i>	<i>Leuciscus flammeus</i>	Clear Fork of the Cumberland and Wolf Creek.
249	<i>Rhinichthys obtusus</i>	<i>Rhinichthys atronasus</i>	Clear Fork of the Cumberland.
249	<i>Ambloplites rupestris</i>	<i>Ambloplites rupestris</i>	Do.
249	<i>Lepomis megalotis</i>	<i>Lepomis megalotis</i>	Do.
249	<i>Lepomis macrochirus</i>	<i>Lepomis macrochirus</i>	Do.
249	<i>Lepomis cyanellus</i>	<i>Apomotis cyanellus</i>	Do.
249	<i>Micropterus dolomieu</i>	<i>Micropterus dolomieu</i>	Do.
249	<i>Alvordius aspro</i>	<i>Hadropterus aspro</i>	Do.
249	<i>Diplesium blennioides</i>	<i>Diplesium blennioides</i>	Do.
249	<i>Boleosoma susanae</i>	<i>Boleosoma susanae</i>	Wolf Creek and Briar Creek.
250	<i>Etheostoma sagitta</i>	<i>Etheostoma sagitta</i>	Wolf Creek.
251	<i>Etheostoma cumberlandicum</i>	<i>Etheostoma flabellare cumberlandicum</i>	Wolf, Briar, Yellow, and Gap Creeks, and Clear Fork of the Cumberland.

1887. CHAS. H. GILBERT.

Descriptions of New and Little Known Etheostomoids. <Proc. U. S. Nat. Mus., vol. x, 1887 (May 17), pp. 47-64.

In the summer of 1884 Prof. Gilbert and Prof. Joseph Swain spent some time making collections of fishes in eastern Kentucky and Tennessee. The new and little known darters obtained were described in this paper. They are as follows:

Etheostoma squamatus Gilbert and Swain, new species (= *Hypohomus squamatus*), a single specimen from French Broad River at mouth of Wolf Creek, Cocke County, Tenn.; *Etheostoma nianguæ spilotum* Gilbert, new subspecies (= *Hypohomus spilotus*), 12 specimens from Sturgeon Creek near Travelers Rest, Owsley County, Ky.; *Etheostoma zonale* Cope, Cypress Creek, Florence, Ala., Rolling Fork and Rockcastle River, Ky.; *Etheostoma (Rhothæca) blennioides* Gilbert and Swain, new species, one specimen (the type) from Cox Creek and one from Shoal Creek, both near Florence, Ala.; *Etheostoma (Etheostoma) saxatile* Hay (= *Ulocentra stigmæa*), tributaries of Clinch River near Clinton, Tenn.; *Etheostoma (Etheostoma) luteovinctum* Gilbert and Swain, new species, 5 specimens from Stone River near Nashville; *Etheostoma (Etheostoma) tuscumbia* Gilbert and Swain, new species, (= *Psychromaster tuscumbia*), stream flowing from the large spring at Tuscumbia, Ala.

Other species contained in the collections made by Profs. Gilbert and Swain on this expedition but never published are the following, which are recorded in our distributional list as "Gilbert and Swain, 1884, collectors:"

Noturus flavus from the Tennessee at Florence, *Noturus eleutherus* from Hines Creek, Clinton, Tenn., *Noturus miurus* from the Clinch River, Clinton, Tenn., *Ameiurus natalis* from Huntsville, Ala., *Ameiurus nigricans* from the Tennessee at Florence, *Ictalurus furcatus* from the Tennessee at Florence,

Erimyzon succetta from the Tennessee at Florence, *Moxostoma duquesnii* from Duck River, Columbia, Tenn., *Moxostoma anisurum* from Richland Creek, Pulaski, Tenn., *Lagochila lacera* from the Tennessee at Florence, and Richland Creek, Pulaski, Tenn., *Campostoma anomalum* from Clinch River, Clinton, Tenn., Tennessee River at Florence, and Wolf Creek, Cocke County, Tenn., *Chrosomus erythrogaster* from the Tennessee at Florence, and Clinch River, Clinton, Tenn., *Cliola vigilax* from Clinch River, Clinton, Tenn., Stone River at Nashville, and Richland Creek, Pulaski, Tenn., *Notropis spectrunculus* from the Tennessee at Florence, Wolf Creek, Cocke County, Tenn., *Notropis galacturus* from Clinch River, Clinton, Tenn., Wolf Creek, Cocke County, Tenn., Harpeth River, Franklin, Tenn., and Duck River at Columbia, Tenn., *Notropis coccogenis* from Wolf Creek, Cocke County, Tenn., and Tennessee River at Florence, *Notropis ariommus* from the Tennessee at Florence, *Notropis whipplii* from the Tennessee at Florence, *Notropis lythrurus* from the Tennessee at Florence, and Richland Creek, Pulaski, Tenn., *Notropis lirus* from the Tennessee at Florence, *Notropis micropteryx* from Richland Creek, Pulaski, Tenn., *Hybognathus nuchale* from the Tennessee near Huntsville, *Phenacobius uranops* from Duck River, Columbia, Tenn., *Rhinichthys atronasmus obtusus* from the Tennessee at Florence and Huntsville, *Hybopsis amblops* from the Tennessee at Florence, and Wolf Creek, Cocke County, Tenn., *Hybopsis dissimilis* from the Tennessee at Florence, *Hybopsis monacus* from Shoal Creek near Florence, *Hybopsis hyostomus* from Clinch River, Clinton, Tenn., *Phoxinus flammeus* from the Tennessee near Huntsville, *Clupea chrysochloris* from Clinch River, Clinton, Tenn., *Fundulus catenatus* from the Tennessee at Florence, *Zygonectes notatus* from the Tennessee at Florence, *Esox reticulatus* from the Tennessee at Florence, *Labidesthes sicculus* from Tusculumbia and Florence, *Chaenobrythus gulosus* from Cypress Creek at Florence, *Lepomis megalotis* from the Tennessee at Florence, Richland Creek, Pulaski, Tenn., and Tusculumbia, *Lepomis pallidus* from the Tennessee at Florence, *Etheostoma simoterum* from Cypress Creek near Florence, Richland Creek, Pulaski, Tenn., Duck River, Columbia, Tenn., Harpeth River, Franklin, Tenn., Hines Creek, Clinton, Tenn., and Tennessee River at Huntsville, *Etheostoma blennioides* from Duck River, Columbia, Tenn., French Broad River at Big Creek, Tenn., and Clinch River, Clinton, Tenn., *Etheostoma caprodes* from Clinch River, Clinton, Tenn., *Etheostoma evides* from Duck River, Columbia, Tenn., *Etheostoma scierum serrula* from Bull Run, Hershells, Tenn., *Etheostoma zonale* from Cypress Creek at Florence and Wolf Creek, Cocke County, Tenn., *Etheostoma camurum* from Duck River, Columbia, Tenn., *Etheostoma maculatum*, from Clinch River, Clinton, Tenn., and Shoal Creek near Florence, *Etheostoma rufilineatum* from Shoal Creek at Florence, and Clinch River, Clinton, Tenn., *Etheostoma flabellare* from Bull Run, Hershells, Tenn., Big Creek, Tenn., Cypress Creek at Florence, and Clinch River, Clinton, Tenn., *Etheostoma squamiceps* from Tusculumbia, Ala., Cypress Creek at Florence, Harpeth River at Franklin, Tenn., and Duck River at Columbia, Tenn., *Etheostoma saxatile* from Bull Run at Hershells, Tenn., and Clinch River at Clinton, Tenn., *Etheostoma caeruleum* from Cypress Creek at Florence, *Aplodinotus grunniens* from the Tennessee at Florence, *Aphredoderus sapanus* from creek near Florence, *Cottus richardsoni* from Wolf Creek, Cocke County, Tenn., the Tennessee at Florence and Huntsville, Clinch River, Clinton, Tenn.

These are all referred to as "Gilbert and Swain, 1884, collectors."

1888. DAVID STARR JORDAN.

A Manual of the Vertebrate Animals of the Northern United States including the District North and East of the Ozark Mountains, South of the Laurentian Hills, North of the Southern Boundary of Virginia, and East of the Missouri River, inclusive of Marine Species, by David Starr Jordan, president of the University of Indiana. Fifth edition, entirely rewritten and much enlarged. Chicago. A. C. McClurg & Co. 1888. pp. i-iii + 1-375.

In that volume the following species are mentioned from definite streams of the region covered by this paper:

Page.	Species as recorded.	Present identification.	Locality.
48	<i>Moxostoma crassilabre</i>	<i>Moxostoma breviceps</i>	Ohio River.
49	<i>Lagochila lacera</i>	<i>Lagochila lacera</i>	Clinch River; Chicakmauga River.
56	<i>Notropis spectrunculus</i>	<i>Notropis spectrunculus</i>	Tennessee River.
59	<i>Notropis lacertosus</i>	<i>Notropis lacertosus</i>	Holston River.
60	<i>Nortopis leuciodus</i>	<i>Nortopis leuciodus</i>	Do.
61	<i>Notropis telescopus</i>	<i>Notropis telescopus</i>	Tennessee River.
63	<i>Phenacobius uranops</i>	<i>Phenacobius uranops</i>	Do.
64	<i>Hybopsis monachus</i>	<i>Hybopsis monachus</i>	Do.
67	<i>Phoxinus estor</i>	<i>Leuciscus vandouisulus</i>	Tennessee and Cumberland Rivers.
68	<i>Phoxinus flammeus</i>	<i>Leuciscus flammeus</i>	Tennessee River.
70	<i>Hiodon selenops</i>	<i>Hiodon selenops</i>	Cumberland River.
83	<i>Amblyopsis spelæus</i>	<i>Amblyopsis spelæus</i>	Subterranean streams in Kentucky and Indiana, Mammoth Cave, etc.
83	<i>Typhlichthys subterraneus</i>	<i>Typhlichthys subterraneus</i>	Caves and wells in Kentucky, Tennessee, and Alabama.
83	<i>Chologaster agassizii</i>	<i>Chologaster agassizii</i>	Subterranean streams in Tennessee and Kentucky.
123	<i>Etheostoma asprellus</i>	<i>Crystallaria asprella</i>	Ohio River at Rising Sun, Ind.
124	<i>Etheostoma susanæ</i>	<i>Boleosoma susanæ</i>	Cumberland River, abundant in south Kentucky.
125	<i>Etheostoma simoterum</i>	<i>Ulocentra simotera</i>	Tennessee and Cumberland Basins.
128	<i>Etheostoma aurantiacum</i>	<i>Hypohomus aurantiacus</i>	Upper Tennessee River.
129	<i>Etheostoma nianguæ spilotum</i>	<i>Hypohomus spilotus</i>	Kentucky River.
129	<i>Etheostoma squamatum</i>	<i>Hypohomus squamatus</i>	French Broad River.
130	<i>Etheostoma rufolineatum</i>	<i>Etheostoma rufilineatum</i>	Do.
131	<i>Etheostoma vulneratum</i>	<i>Etheostoma vulneratum</i>	Do.
131	<i>Etheostoma flabellare Cumberlandicum</i>	<i>Etheostoma flabellare Cumberlandicum</i>	Cumberland River.
132	<i>Etheostoma sagitta</i>	<i>Etheostoma sagitta</i>	Cumberland River, Ky.
132	<i>Etheostoma virgatum</i>	<i>Etheostoma virgatum</i>	Rockcastle River, Ky.
133	<i>Etheostoma luteovinctum</i>	<i>Etheostoma luteovinctum</i>	Stone River, Tenn.

1888a. DAVID STARR JORDAN.

Descriptions of fourteen species of fresh-water fishes collected by the United States Fish Commission in the summer of 1888. <Proc. U. S. Nat. Mus., vol. XI, 1888 (July 5, 1889), pp. 351-362, pls. XLIII-XLV.

A large part of the summer of 1888 was spent by Dr. Jordan in an exploration of the streams of Virginia and North Carolina, under the auspices of the United States Fish Commission. In this work he was assisted by Prof. Oliver P. Jenkins, then of DePauw University; Barton W. Evermann, then of the Indiana State Normal School; and Seth E. Meek, then of Coe College, Cedar Rapids, Iowa.

The exploration included the headwaters of the Holston and French Broad Rivers, from which the following new species were described in the paper cited above:

Hybopsis watauga from North Fork of the Holston at Saltville, Va., and Watauga River near Elizabethton, Tenn.; *Etheostoma verecundum* (= *Ulocentra veracundum*) from Middle Fork of the Holston, 5 miles south of Glade Spring, Va.; *Etheostoma swannanoa* from South Fork of the Swannanoa at Black Mountain, N. C., South Fork of the Holston at Holstein Mills, Va., and Middle Fork of the Holston at Marion, Va.

1889. JAMES A. HENSHALL.

On a Collection of Fishes from East Tennessee. <Journ. Cincinnati Society of Natural History, vol. XII, 1889 (read June 4, 1889), pp. 31-33.

In that paper Dr. Henshall recorded five species of fishes, all from a "small tributary of the Tennessee at Whiteside, Tenn.," where they were collected by Charles Dury, of Cincinnati.

The list is as follows:

Page.	Species as recorded.	Present identification.
31	<i>Campostoma anomalum</i>	<i>Campostoma anomalum</i> .
31	<i>Chrosomus erythrogaster</i>	<i>Chrosomus erythrogaster</i> .
32	<i>Etheostoma duryi</i>	<i>Ulocentra simotera</i> .
32	<i>Etheostoma formosa</i>	<i>Etheostoma cocculeum</i> .
32	<i>Cottus richardsoni</i>	<i>Cottus ictalops</i> .

1889. DAVID STARR JORDAN.

Report of Explorations made during the Summer and Autumn of 1888 in the Alleghany Region of Virginia, North Carolina, and Tennessee, and in Western Indiana, with an Account of the Fishes Found in Each of the River Basins of those Regions. <Bull. U. S. Fish Comm., VIII, 1888 (1889), pp. 97-173, pls. XIII-XV (figs. 1-13).

The explorations indicated above were made under the auspices of the United States Fish Commission by Dr. Jordan, assisted by Prof. Oliver P. Jenkins, then of Depauw University; Prof. Barton W. Evermann, then of the Indiana State Normal School; and Prof. Seth E. Meek, then of Coe College. Profs. Jordan and Jenkins began field work at Luray, Va., July 25. They were joined at Lexington, Va., July 27, by Prof. Evermann, who remained with them until the party reached Hot Springs, N. C., August 14, when he returned to Indiana to take up work on the Wabash River. Prof. Meek joined the party at Hot Springs August 14. Dr. Jordan returned to Indiana, August 27, from Greensboro, N. C., Profs. Jenkins and Meek continuing in the field until September 8, when they brought the investigations to a close at Clifton Forge, Va.

Streams were examined and collections were made within the region covered by the present paper as follows:

Holston River.—South Fork of Holston River at Holstein Mills, Va., August 7; Middle Fork of Holston River at Marion, Va., August 7, and near Glade Springs, Va., August 8; North Fork of Holston River at Saltville, Va., August 9; Beaver Creek, 4 miles south of Bristol, Tenn., August 10; Watauga River and Doe River near Elizabethton, Tenn., August 11.

French Broad River.—French Broad River and Spring Creek at Hot Springs, N. C., August 13 and 14; North Fork of Swannanoa River at Burnett's mill near foot of Black Mountain, N. C., August 20; South Fork of Swannanoa River (Hat Creek) at Black Mountain station, August 21; Swannanoa River near Asheville, N. C., August 15 and 17.

The species obtained are indicated in the following tabular statement:

Page.	Species as recorded.	Present identification.	Locality.
143	<i>Noturus miurus</i>	<i>Schilbeodes miurus</i>	North Fork of the Holston.
151	<i>Noturus eleutherus</i>	<i>Schilbeodes eleutherus</i>	French Broad River.
143, 151	<i>Leptops olivaris</i>	<i>Leptops olivaris</i>	Watauga River; French Broad River; South Fork of Swannanoa.
151	<i>Ictalurus punctatus</i>	<i>Ictalurus punctatus</i>	French Broad River.
143	<i>Catostomus teres</i>	<i>Catostomus commersonii</i>	South Fork of Holston; Middle Fork of the Holston at Marion and Glade Spring; Beaver Creek; Watauga River.
151	.....do.....	.....do.....	Swannanoa River; South Fork of Swannanoa; Spring Creek.
144	<i>Catostomus nigricans</i>	<i>Hypentelium nigricans</i>	South Fork of the Holston; Middle Fork of Holston at Marion and Glade Spring; Beaver Creek; Watauga River; Doe River.
151	.....do.....	.....do.....	Swannanoa River; South Fork of Swannanoa; Spring Creek.
144	<i>Moxostoma duquesnei</i>	<i>Moxostoma aureolum</i>	Middle Fork of Holston at Marion and Glade Spring; North Fork of Holston; Beaver Creek; Watauga River.

Page.	Species as recorded.	Present identification.	Locality.
151	<i>Moxostoma duquesnei</i>	<i>Moxostoma aureolum</i>	French Broad River and Spring Creek.
144	<i>Lagochila lacera</i>	<i>Lagochila lacera</i>	North Fork of Holston.
144	<i>Campostoma anomalum</i>	<i>Campostoma anomalum</i>	South Fork of Holston; Middle Fork of Holston at Marion and Glade Spring; North Fork of Holston; Beaver Creek; Watauga and Doe Rivers.
152	.....do.....	.....do.....	Spring Creek; Swannanoa River; South Fork of Swannanoa.
144	<i>Notropis spectrunculus</i>	<i>Notropis spectrunculus</i>	Middle Fork of Holston at Marion and Glade Spring; South Fork of Holston.
152	.....do.....	.....do.....	Spring Creek; North Fork of Swannanoa; South Fork of the Swannanoa.
144	<i>Notropis microstomus</i>	<i>Notropis blennioides</i>	North Fork of Holston; Doe River; Beaver Creek; Watauga River.
152	.....do.....	.....do.....	Spring Creek; French Broad River; Swannanoa River; South Fork of Swannanoa River.
152	<i>Hybopsis dissimilis</i>	<i>Hybopsis dissimilis</i>	Spring Creek; Swannanoa River.
146	<i>Rhinichthys cataractæ</i>	<i>Rhinichthys cataractæ</i>	South Fork of Holston.
146	<i>Rhinichthys obtusus</i>	<i>Rhinichthys atronasmus</i>	South Fork of Holston; Middle Fork of Holston at Marion and Glade Spring.
152	.....do.....	.....do.....	South Fork of Swannanoa; North Fork of Swannanoa.
146	<i>Phenacobius uranops</i>	<i>Phenacobius uranops</i>	Middle Fork of Holston at Glade Spring; North Fork of Holston; Beaver Creek; Watauga River.
152	.....do.....	.....do.....	Spring Creek; Swannanoa River.
146	<i>Lepomis pallidus</i>	<i>Lepomis pallidus</i>	Middle Fork of Holston at Glade Spring.
152	.....do.....	.....do.....	Spring Creek.
147	<i>Lepomis megalotis</i>	<i>Lepomis megalotis</i>	North Fork of Holston.
147	<i>Ambloplites rupestris</i>	<i>Ambloplites rupestris</i>	South Fork of Holston; Middle Fork of Holston at Marion and Glade Spring; Beaver Creek; Watauga River.
153	.....do.....	.....do.....	Spring Creek; Swannanoa River.
152	<i>Notropis galacturus</i>	<i>Notropis galacturus</i>	Spring Creek; Swannanoa River; South Fork of Swannanoa; South Fork of Holston; Middle Fork of Holston at Glade Spring; North Fork of Holston; Beaver Creek; Watauga and Doe Rivers.
144	<i>Notropis megalops</i>	<i>Notropis cornutus</i>	South Fork of Holston; Middle Fork of Holston at Glade Spring; North Fork of Holston; Beaver Creek; Watauga River.
144	<i>Notropis lacertosus</i>	<i>Notropis lacertosus</i>	South Fork of Holston; North Fork of Holston.
152	<i>Notropis coccogenis</i>	<i>Notropis coccogenis</i>	Spring Creek; Swannanoa River; North Fork of Swannanoa; Middle Fork of Holston at Marion and Glade Spring; South Fork of Holston; North Fork of Holston; Beaver Creek; Watauga and Doe Rivers.
144	<i>Notropis leuciodus</i>	<i>Notropis leuciodus</i>	South Fork of Holston; Middle Fork of Holston at Marion and Glade Spring; North Fork of the Holston; Beaver Creek; Watauga and Doe Rivers.
152	.....do.....	.....do.....	Spring Creek; Swannanoa River; French Broad River.
145	<i>Notropis telescopus</i>	<i>Notropis telescopus</i>	South Fork of Holston; Middle Fork of Holston at Marion and Glade Spring; North Fork of Holston; Watauga and Doe Rivers.
152	.....do.....	.....do.....	Spring Creek; Swannanoa River; South Fork of Swannanoa River; North Fork of Swannanoa.
145	<i>Notropis atherinoides</i>	<i>Notropis atherinoides</i>	Middle Fork of Holston at Glade Spring; North Fork of Holston; Watauga and Doe Rivers.
152	.....do.....	.....do.....	Spring Creek; Swannanoa River; French Broad River.
145	<i>Notropis ariommus</i>	<i>Notropis ariommus</i>	Watauga River.
145	<i>Notropis rubricroceus</i>	<i>Notropis rubricroceus</i>	Middle Fork of the Holston; South Fork of Holston; Doe River.
145	<i>Hybopsis amblops</i>	<i>Hybopsis amblops</i>	South Fork of Holston; Middle Fork of Holston at Marion and Glade Spring; North Fork of Holston; Beaver Creek; Watauga and Doe Rivers.
152	.....do.....	.....do.....	Spring Creek; Swannanoa River.
146	<i>Hybopsis monacus</i>	<i>Hybopsis monacus</i>	North Fork of the Holston.
152	.....do.....	.....do.....	Spring Creek; Swannanoa River.
146	<i>Hybopsis watauga</i>	<i>Hybopsis watauga</i>	North Fork of Holston; Watauga River.
146	<i>Hybopsis kentuckiensis</i>	<i>Hybopsis kentuckiensis</i>	South Fork of Holston; Middle Fork of Holston at Marion and Glade Spring; North Fork of Holston.
147	<i>Etheostoma caprodes</i>	<i>Percina caprodes</i>	North Fork of Holston; Watauga River.
153	.....do.....	.....do.....	Swannanoa River.
147	<i>Etheostoma macrocephalum</i>	<i>Hadropterus macrocephalus</i>	North Fork of Holston; Middle Fork of Holston at Glade Spring.
153	<i>Etheostoma evides</i>	<i>Hadropterus evides</i>	Spring Creek; Swannanoa River; French Broad River.
147	<i>Etheostoma aurantiacum</i>	<i>Hypohomus aurantiacus</i>	North Fork of Holston; Watauga River.
153	<i>Etheostoma squamatum</i>	<i>Hypohomus squamatus</i>	Spring Creek.
147	.....do.....	.....do.....	Watauga River.
148	<i>Etheostoma simoterum</i>	<i>Ulocentra simotera</i>	Middle Fork of Holston at Marion; South Fork of Holston; Beaver Creek.
148	<i>Etheostoma blennioides</i>	<i>Diplesion blennioides</i>	North Fork of Holston; Middle Fork of Holston at Glade Spring; Doe River.
153	.....do.....	.....do.....	Spring Creek; Swannanoa River.
148	<i>Etheostoma swannanoa</i>	<i>Etheostoma swannanoa</i>	Middle Fork of Holston River at Marion; South Fork of Holston.

Page.	Species as recorded.	Present identification.	Locality.
153	<i>Etheostoma swannanoa</i>	<i>Etheostoma swannanoa</i>	South Fork of Swannanoa River.
148	<i>Etheostoma zonale</i>	<i>Etheostoma zonale</i>	North Fork of Holston; Middle Fork of Holston at Glade Spring; Beaver Creek.
153	.....do.....	.....do.....	Spring Creek; Swannanoa River; French Broad River.
153	<i>Etheostoma camurum</i>	<i>Etheostoma camurum</i>	Spring Creek.
149	<i>Etheostoma rufolineatum</i>	<i>Etheostoma rufolineatum</i>	North Fork of Holston; Middle Fork of Holston at Marion and Glade Spring; South Fork of Holston.
153	.....do.....	.....do.....	Spring Creek; Swannanoa River.
149	<i>Etheostoma flabellare</i>	<i>Etheostoma flabellare</i>	Middle Fork of Holston at Marion; South Fork of Holston.
153	.....do.....	.....do.....	North Fork of Swannanoa; South Fork of Swannanoa; Swannanoa River.
148	<i>Etheostoma verecundum</i>	<i>Ulocentra verecunda</i>	Middle Fork of Holston at Glade Spring.
149	<i>Cottus bairdi</i>	<i>Cottus ictalops</i>	North Fork of Holston; Middle Fork of Holston at Marion and Glade Spring; South Fork of Holston; Watauga River; Doe River.
154	.....do.....	.....do.....	Spring Creek; South Fork of Swannanoa.

1891. CHARLES H. GILBERT.

Report of Explorations made in Alabama during 1889, with Notes on the Fishes of the Tennessee, Alabama, and Escambia Rivers. <Bull. U. S. Fish Comm. for 1889 (1891) pp. 143-159.

In May and June, 1889, Prof. Philip H. Kirsch, assisted by William M. Andrews and Everett O. Jones, students in the University of Indiana, while engaged in field work for the United States Fish Commission, made collections of fishes from certain streams in the Tennessee Basin. On May 27 they examined Spring Creek at Huntsville, Ala. This stream is tributary to Pinhook Creek, which in turn is tributary to the Tennessee River. The next day they collected in Pinhook Creek near Huntsville. On June 1 collections were made near Decatur, Ala., in Veta Wright Creek, a small tributary of the Tennessee. On June 5 they examined Cypress Creek (a tributary of the Tennessee) near Florence, Ala. On June 6 collections were made at Tuscumbia, Ala., from Spring Branch, tributary to the Tennessee. On June 7 they made collections in Big Nance Creek from the mill pond near Courtland, Ala., downstream for about 3 miles. They also examined Spring Creek near Courtland. The next day collections were made near Hillsboro, Ala., in Mallett Creek, also a small southern tributary of the Tennessee.

These collections were turned over to Dr. Gilbert for study and report.

In 1884 Profs. Gilbert and Swain made collections in Shoal Creek near Florence, Ala.; Duck River near Columbia, Tenn.; and Richland Creek and Pigeon Roost Creek near Pulaski, Tenn. These collections were also reported on by Dr. Gilbert in this paper.

Following is a list of the species obtained:

Page.	Species as recorded.	Present identification.	Locality.
146	<i>Lepidosteus osseus</i>	<i>Lepidosteus osseus</i>	Richland Creek.
146	<i>Noturus miurus</i>	<i>Schilbeodes miurus</i>	Duck River and Cypress Creek.
146	<i>Noturus flavus</i>	<i>Noturus flavus</i>	Shoal Creek.
146	<i>Ameiurus melas</i>	<i>Ameiurus melas</i>	Spring Creek.
146	<i>Ameiurus natalis</i>	<i>Ameiurus natalis</i>	Mallett and Veta Wright Creeks.
146	<i>Ictalurus punctatus</i>	<i>Ictalurus punctatus</i>	Tennessee River near Florence, and Spring Creek.
146	<i>Carpionodes difformis</i>	<i>Carpionodes difformis</i>	Richland Creek.
146	<i>Ictiobus bubalus</i>	<i>Ictiobus bubalus</i>	Tennessee River near Florence.
147	<i>Catostomus teres</i>	<i>Catostomus commersonii</i>	Small tributaries of the Tennessee.
147	<i>Catostomus nigricans</i>	<i>Hypentelium nigricans</i>	Abundant.
147	<i>Erimyzon succetta</i>	<i>Erimyzon succetta</i>	Cypress and Veta Wright Creeks.
147	<i>Minytrema melanops</i>	<i>Minytrema melanops</i>	Moderately abundant.
147	<i>Moxostoma macrolepidotum duquesnei</i>	<i>Moxostoma aureolum</i>	Generally abundant.
147	<i>Moxostoma anisurum</i>	<i>Moxostoma anisurum</i>	Richland and Spring Creeks.

Page.	Species as recorded.	Present identification.	Locality.
147	<i>Lagochila lacera</i>	<i>Lagochila lacera</i>	Richland and Cypress Creeks.
147	<i>Campostoma anomalum</i>	<i>Campostoma anomalum</i>	Generally abundant.
147	<i>Chrosomus erythrogaster oreas</i> .	<i>Chrosomus erythrogaster oreas</i> .	Cypress Creek.
147	<i>Hybognathus nuchalis</i>	<i>Hybognathus nuchale</i>	Spring Branch, Spring Creek, Big Nance Creek; and Pinhook Creek.
147	<i>Pimephales notatus</i>	<i>Pimephales notatus</i>	Everywhere abundant.
147	<i>Cliola vigilax</i>	<i>Cliola vigilax</i>	Spring Branch and Richland Creek.
147	<i>Notropis spectrunculus</i>	<i>Notropis spectrunculus</i>	Big Nance Creek.
147	<i>Notropis deliciosus</i>	<i>Notropis blennioides</i>	Do.
147	<i>Notropis whipplei</i>	<i>Notropis whipplei</i>	Generally abundant.
147	<i>Notropis galacturus</i>	<i>Notropis galacturus</i>	Widely distributed.
147	<i>Notropis megalops</i>	<i>Notropis cornutus</i>	Everywhere abundant.
147	<i>Notropis coccogenis</i>	<i>Notropis coccogenis</i>	Cypress Creek.
148	<i>Notropis ariommus</i>	<i>Notropis ariommus</i>	Do.
148	<i>Notropis boops</i>	<i>Notropis boops</i>	Cypress Creek, Big Nance, and Veta Wright Creeks.
148	<i>Notropis leuciodus</i>	<i>Notropis leuciodus</i>	Cypress and Big Nance Creeks.
148	<i>Notropis umbratilis fasciolaris</i> .	<i>Notropis umbratilis fasciolaris</i> .	Everywhere abundant.
148	<i>Notropis micropteryx</i>	<i>Notropis micropteryx</i>	Shoal Creek.
148	<i>Ericymba buccata</i>	<i>Ericymba buccata</i>	Cypress Creek.
149	<i>Phenacobius uranops</i>	<i>Phenacobius uranops</i>	Cypress, Big Nance, Shoal, and Richland Creeks and Duck River.
149	<i>Rhinichthys atronasus</i>	<i>Rhinichthys atronasus</i>	Cypress, Pinhook, and Spring Creeks.
149	<i>Hybopsis kentuckiensis</i>	<i>Hybopsis kentuckiensis</i>	Cypress and Mallett Creeks and Duck River.
149	<i>Hybopsis dissimilis</i>	<i>Hybopsis dissimilis</i>	Shoal Creek.
149	<i>Hybopsis amblops</i>	<i>Hybopsis amblops</i>	Everywhere abundant.
149	<i>Hybopsis monachus</i>	<i>Hybopsis monachus</i>	Shoal Creek.
149	<i>Semotilus atromaculatus</i>	<i>Semotilus atromaculatus</i>	Generally abundant in ponds and sluggish streams.
149	<i>Phoxinus vittatus</i>	<i>Leuciscus flammus</i>	Spring Creek, Spring Branch, and Veta Wright Creek.
149	<i>Opsopæodus emiliae</i>	<i>Opsopæodus emiliae</i>	Mallett Creek.
149	<i>Notemigonus crysoleucas</i>	<i>Notemigonus crysoleucas</i>	Veta Wright Creek.
149	<i>Fundulus catenatus</i>	<i>Fundulus catenatus</i>	Cypress, Shoal, Pinhook, and Richland Creeks.
149	<i>Fundulus albolineatus</i>	<i>Fundulus albolineatus</i>	Spring Creek.
150	<i>Zygonectes notatus</i>	<i>Fundulus notatus</i>	Everywhere abundant.
150	<i>Lucius vermiculatus</i>	<i>Lucius vermiculatus</i>	Cypress and Big Nance Creeks.
150	<i>Labidesthes sicculus</i>	<i>Labidesthes sicculus</i>	Cypress Creek, Spring Branch, Big Nance, and Spring Creeks.
149	<i>Aphredoderus sayanus</i>	<i>Aphredoderus sayanus</i>	Cypress Creek.
149	<i>Pomoxis sparoides</i>	<i>Pomoxis sparoides</i>	Mallett and Veta Wright Creeks.
150	<i>Ambloplites rupestris</i>	<i>Ambloplites rupestris</i>	Cypress, Big Nance, Spring, and Richland Creeks.
150	<i>Chaenobryttus gulosus</i>	<i>Chaenobryttus gulosus</i>	Cypress and Mallett Creeks.
150	<i>Lepomis pallidus</i>	<i>Lepomis pallidus</i>	Generally abundant.
150	<i>Lepomis megalotis</i>	<i>Lepomis megalotis</i>	Everywhere abundant.
150	<i>Micropterus dolomieu</i>	<i>Micropterus dolomieu</i>	Cypress Creek.
150	<i>Micropterus salmoides</i>	<i>Micropterus salmoides</i>	Abundant.
150	<i>Etheostoma nigrum</i>	<i>Boleosoma nigrum</i>	Cypress Creek and Spring Branch.
150	<i>Etheostoma stigmaeum</i>	<i>Ulocentra stigmaea</i>	Cypress and Big Nance Creeks.
150	<i>Etheostoma simotermum</i>	<i>Ulocentra simotermum</i>	Everywhere very abundant.
150	<i>Etheostoma blennioides</i>	<i>Etheostoma blennioides</i>	Cypress Creek.
150	<i>Etheostoma blennioides</i>	<i>Etheostoma blennioides</i>	Cypress, Shoal, and Big Nance Creeks
151	<i>Etheostoma caprodes</i>	<i>Percina caprodes</i>	Generally abundant.
151	<i>Etheostoma scierum</i>	<i>Hadropterus scierum</i>	Spring Creek.
151	<i>Etheostoma aspro</i>	<i>Hadropterus aspro</i>	Spring Branch and Mallett Creek.
151	<i>Etheostoma evides</i>	<i>Hadropterus evides</i>	Duck River.
151	<i>Etheostoma zonale</i>	<i>Etheostoma zonale</i>	Cypress, Shoal, and Big Nance Creeks.
151	<i>Etheostoma maculatum</i>	<i>Etheostoma maculatum</i>	Cypress Creek and Duck River.
151	<i>Etheostoma rufilineatum</i>	<i>Etheostoma rufilineatum</i>	Cypress and Shoal Creeks.
151	<i>Etheostoma flabellare</i>	<i>Etheostoma flabellare</i>	Cypress, Spring, and Pinhook Creeks.
151	<i>Etheostoma squamiceps</i>	<i>Etheostoma squamiceps</i>	Generally abundant.
151	<i>Etheostoma coeruleum</i>	<i>Etheostoma coeruleum</i>	Cypress and Spring Creeks.
151	<i>Etheostoma tuscumbia</i>	<i>Etheostoma tuscumbia</i>	Spring Branch and Veta Wright Creek.
151	<i>Cottus bairdi</i>	<i>Cottus ictalops</i>	Generally abundant in clear cold streams.

1892. PHILIP H. KIRSCH.

Notes on the Streams and Fishes of Clinton County, Ky., with a Description of a New Darter. <Bull. U. S. Fish Comm., vol. x, 1890 (1892), pp. 289-292.

In the autumn of 1889 and spring of 1890 Dr. Kirsch examined many of the streams in Clinton County, Ky., and made collections of fishes in seven of them, namely, Indian Creek, Willis Creek, Wolf River, Ill-will Creek, Spring Creek, Smith Creek, and Albany Branch.

Indian Creek is directly tributary to the Cumberland River. Collections were made from it in its lower course and in the deep gorge below Seventy-six Falls in its principal western branch. Willis Creek also flows directly into the Cumberland and was examined from the "three forks" to its mouth, a distance of about 5 miles. Wolf River is a branch of Obeyes River, which in turn is directly tributary to the Cumberland.

Only a few specimens were obtained from Wolf River. Ill-will and Spring Creeks flow into Wolf River. Collections were made in Spring Creek from its middle course between the mouths of Albany Branch and Smith Creek, a distance of 2 miles. Smith Creek flows into Spring Creek and was investigated for its entire length. Albany branch also flows into Spring Creek and was examined in its upper and middle courses.

The list of species is as follows:

Species as recorded.	Present identification.	Locality.
<i>Polyodon spathula</i>	<i>Polyodon spathula</i>	Indian Creek and Wolf River.
<i>Lepisosteus osseus</i>	<i>Lepisosteus osseus</i>	Indian, Willis, and Ill-will Creeks.
<i>Ictalurus punctatus</i>	<i>Ictalurus punctatus</i>	Indian and Willis Creeks.
<i>Ameiurus nebulosus</i>	<i>Ameiurus nebulosus</i>	Indian, Smith, and Albany Creeks.
<i>Ictiobus cyprinella</i>	<i>Ictiobus cyprinella</i>	Indian Creek.
<i>Catostomus commersonii</i>	<i>Catostomus commersonii</i>	Indian and Willis Creeks and Wolf River.
<i>Catostomus nigricans</i>	<i>Hypentelium nigricans</i>	Indian, Willis, Spring, and Albany Creeks.
<i>Camptostoma anomalum</i>	<i>Camptostoma anomalum</i>	Willis, Spring, Smith, and Albany Creeks.
<i>Chrosomus erythrogaster</i>	<i>Chrosomus erythrogaster</i>	Indian, Smith, and Albany Creeks.
<i>Pimephales notatus</i>	<i>Pimephales notatus</i>	Do.
<i>Notropis whipplei</i>	<i>Notropis whipplei</i>	Indian Creek.
<i>Notropis galacturus</i>	<i>Notropis galacturus</i>	Indian, Willis, Spring, and Smith Creeks.
<i>Notropis cornutus</i>	<i>Notropis cornutus</i>	Indian, Willis, Spring, Smith, and Albany Creeks.
<i>Notropis leuciodus</i>	<i>Notropis leuciodus</i>	Smith Creek.
<i>Notropis umbratilis cyanocephalus</i>	<i>Notropis umbratilis lythrurus</i>	Indian, Willis, Spring, Smith, and Albany Creeks.
<i>Notropis telescopus</i>	<i>Notropis telescopus</i>	Indian Creek.
<i>Rhinichthys atronasus</i>	<i>Rhinichthys atronasus</i>	Indian, Willis, Smith, and Albany Creeks.
<i>Hybopsis amblops</i>	<i>Hybopsis amblops</i>	Indian Creek.
<i>Hybopsis kentuckiensis</i>	<i>Hybopsis kentuckiensis</i>	Spring, Smith, and Albany Creeks.
<i>Clupea chrysochloris</i>	<i>Pomolobus chrysochloris</i>	Willis Creek.
<i>Anguilla chrysypa</i>	<i>Anguilla chrysypa</i>	Ill-will Creek and Wolf River.
<i>Fundulus catenatus</i>	<i>Fundulus catenatus</i>	Indian and Willis Creeks.
<i>Ambloplites rupestris</i>	<i>Ambloplites rupestris</i>	Indian, Spring, Smith, and Albany Creeks.
<i>Lepomis megalotis</i>	<i>Lepomis megalotis</i>	Indian Creek.
<i>Apomotis cyanellus</i>	<i>Apomotis cyanellus</i>	Indian, Willis, Spring, and Smith Creeks.
<i>Diplesion blennioides</i>	<i>Diplesion blennioides</i>	Indian, Spring, and Smith Creeks.
<i>Percina caprodes</i>	<i>Percina caprodes</i>	Willis Creek.
<i>Etheostoma rufilineatum</i>	<i>Etheostoma rufilineatum</i>	Indian Creek.
<i>Etheostoma flabellare cumberlandicum</i>	<i>Etheostoma flabellare cumberlandicum</i>	Indian, Smith, and Albany Creeks.
<i>Etheostoma ceruleum</i>	<i>Etheostoma ceruleum</i>	Indian Smith Willis, Spring, and Albany Creeks.
<i>Etheostoma obeyense</i>	<i>Etheostoma obeyense</i>	Indian, Spring, Smith, and Albany Creeks.
<i>Stizostedion canadense</i>	<i>Stizostedion canadense</i>	Indian Creek.

1893. PHILIP H. KIRSCH.

Notes on a Collection of Fishes from the Southern Tributaries of the Cumberland River in Kentucky and Tennessee. <Bull. U. S. Fish Comm., vol. XI, 1891 (May 25, 1893), pp. 257-265.

During the period from August 18 to September 9, 1891, Dr. Kirsch made collections of fishes in certain southern tributaries of the Cumberland River between Nashville and the Cincinnati Southern Railroad, as follows:

West Fork of Stone River for a distance of 1 mile below Murfreesboro, Tenn., August 20; Spring Creek at Springcreek station, Tenn., 12 miles from its mouth, August 21; Round Lick Creek at Watertown, Tenn., August 22; Caney Fork River, 1 mile west of Lancaster, Tenn., August 24; Smith Fork (a tributary of Caney Fork) near Lancaster, August 24; Roaring River, a few miles from Windle, Tenn., August 30; Spring Creek (a tributary of Roaring River) at Netherland, Tenn., August 25; Obeyes River at Olympus, Tenn., August 28; Eagle Creek (a tributary of Obeyes River) near Olympus, August 27; Wolf River (a tributary of Obeyes River) 3 miles north of Byrdstown, Tenn., August 28; Cumberland River near the mouth of Willis Creek, Cumberland County, Ky., September 1; Willis Creek at its mouth, September 1; Beaver Creek above and below McCackney's milldam, Wayne County, Ky., September 3; Otter Creek (a tributary of Beaver Creek) near Jones's milldam on the Monticello and Albany

road, September 2; Little South Fork of Cumberland River near the mouth of Canada Creek, 8 miles above its mouth, September 4; Big South Fork of Cumberland River near the mouth of Rock Creek, 7 miles west of Whitley station, Ky., September 7; Rock Creek in its lower course near Whitley station, Ky., September 7; New River (a tributary of Big South Fork) at New River station, September 8; Brimstone Creek near New River station, September 9.

The following table shows the species obtained and their distribution in the streams examined:

Page.	Species as recorded.	Present identification.	Locality.
262 264 265 260	<i>Lepisosteus osseus</i>	<i>Lepisosteus osseus</i>	Smith Fork; Obeyes River; Cumberland River.
261	<i>Ameiurus natalis</i>	<i>Ameiurus natalis</i>	Spring Creek; Round Lick Creek.
262	<i>Ameiurus nigricans</i>	<i>Ameiurus lacustris</i>	Smith Fork.
264	<i>Ameiurus nebulosus</i>	<i>Ameiurus nebulosus</i>	Obeyes River; Beaver Creek; Otter Creek.
262	<i>Ictalurus punctatus</i>	<i>Ictalurus punctatus</i>	Smith Fork.
264	do.	do.	Obeyes River.
262	<i>Leptops olivaris</i>	<i>Leptops olivaris</i>	Smith Fork.
262	<i>Noturus flavus</i>	<i>Noturus flavus</i>	Smith Fork; Obeyes River; Eagle Creek.
260	<i>Catostomus nigricans</i>	<i>Hypentelium nigricans</i>	West Fork of Stone River.
262	do.	do.	Spring Creek; Caney Fork River.
263	do.	do.	Smith Fork.
264	do.	do.	Roaring River.
265 266 267	do.	do.	Obeyes River; Eagle Creek; Wolf River; Little South Fork; Rock Creek; Willis Creek; Beaver Creek; Canada Creek; New River; Otter Creek; Big South Fork; Brimstone Creek.
260	<i>Moxostoma macrolepidotum duquesnei</i>	<i>Moxostoma aureolum</i>	West Fork of Stone River.
262	do.	do.	Spring Creek; Caney Fork River; Smith Fork.
264	do.	do.	Obeyes River; Eagle Creek; Wolf River.
265	do.	do.	Cumberland River; Willis Creek; Beaver Creek; Otter Creek.
266	do.	do.	Little South Fork.
267	do.	do.	Canada Creek; Big South Fork; Rock Creek.
260	<i>Lagochila lacera</i>	<i>Lagochila lacera</i>	West Fork of Stone River; Little South Fork.
267	do.	do.	Canada Creek.
262	<i>Ictiobus difformis</i>	<i>Carpionodes difformis</i>	Caney Fork River.
265	do.	do.	Smith Fork; Willis Creek.
263	<i>Catostomus teres</i>	<i>Catostomus commersonii</i>	Spring Creek, tributary to Roaring River.
260	<i>Campostoma anomalum</i>	<i>Campostoma anomalum</i>	West Fork of Stone River; Spring Creek.
261	do.	do.	Round Lick Creek.
262	do.	do.	Smith Fork.
263	do.	do.	Roaring River.
264	do.	do.	Eagle Creek; Wolf River.
265	do.	do.	Willis Creek.
266	do.	do.	Beaver and Otter Creeks.
267	do.	do.	Little South Fork; Canada Creek; Rock Creek; New River; Brimstone Creek.
260	<i>Pimephales notatus</i>	<i>Pimephales notatus</i>	West Fork of Stone River.
261	do.	do.	Spring Creek.
262	do.	do.	Round Lick Creek; Smith Fork.
264	do.	do.	Wolf River; Beaver and Otter Creeks.
266	do.	do.	Little South Fork.
267	do.	do.	Canada Creek.
262	<i>Hybognathus nuchalis</i>	<i>Hybognathus nuchalis</i>	Smith Fork.
263	<i>Chrosomus erythrogaster</i>	<i>Chrosomus erythrogaster</i>	Roaring River; Spring Creek, tributary to Roaring River; Beaver Creek.
261	<i>Semotilus atromaculatus</i>	<i>Semotilus atromaculatus</i>	Round Lick Creek; Roaring River and Spring Creek, its tributary.
263	do.	do.	Beaver Creek.
266	do.	do.	Canada Creek.
260	<i>Notropis boops</i>	<i>Notropis shumardi</i>	West Fork of Stone River.
264	do.	do.	Wolf River.
260	<i>Notropis whipplei</i>	<i>Notropis whipplei</i>	West Fork of Stone River; Spring Creek.
262	do.	do.	Caney Fork River; Smith Fork.
264	do.	do.	Obeyes River; Eagle Creek; Wolf River.
265	do.	do.	Willis Creek.
266	do.	do.	Beaver and Otter Creeks.
267	do.	do.	Big South Fork; Rock Creek; New River; Brimstone Creek.
260	<i>Notropis galacturus</i>	<i>Notropis galacturus</i>	West Fork of Stone River.
261	do.	do.	Spring Creek.
262	do.	do.	Smith Fork.
263	do.	do.	Roaring River.
264	do.	do.	Obeyes River; Eagle Creek; Wolf River.
265	do.	do.	Willis Creek.

Page.	Species as recorded.	Present identification.	Locality.
266	<i>Notropis galacturus</i>	<i>Notropis galacturus</i>	Beaver and Otter Creeks.
267	do.....	do.....	Little South Fork; Rock Creek; New River.
260	<i>Notropis megalops</i>	<i>Notropis cornutus</i>	West Fork of Stone River.
261	do.....	do.....	Spring Creek; Round Lick Creek.
262	do.....	do.....	Smith Fork.
264	do.....	do.....	Obeys River; Eagle Creek; Wolf River.
265	do.....	do.....	Willis Creek.
266	do.....	do.....	Beaver and Otter Creeks.
267	do.....	do.....	Little South Fork; Canada Creek.
264	<i>Notropis telescopus</i>	<i>Notropis telescopus</i>	West Fork of Stone River.
265	do.....	do.....	Obeys River; Eagle Creek.
267	do.....	do.....	Willis Creek.
261	<i>Notropis umbratilis cyanocephalus</i> .	<i>Notropis umbratilis lythrurus</i> .	Canada Creek; Big South Fork; Rock Creek.
267	do.....	do.....	Spring Creek; Round Lick Creek.
263	do.....	do.....	Roaring River.
264	do.....	do.....	Eagle Creek; Wolf River.
265	do.....	do.....	Cumberland River; Willis Creek.
266	do.....	do.....	Otter Creek.
267	do.....	do.....	Canada Creek; Big South Fork; New River; Brimstone Creek.
261	<i>Notropis atherinoides</i>	<i>Notropis atherinoides</i>	Spring Creek; Round Lick Creek.
262	do.....	do.....	Smith Fork.
264	do.....	do.....	Obeys River; Eagle Creek; Wolf River.
265	do.....	do.....	Cumberland River.
267	do.....	do.....	Little South Fork; Canada Creek; Big South Fork; Rock Creek; Brimstone Creek.
261	<i>Notropis ariommus</i>	<i>Notropis ariommus</i>	Round Lick Creek.
267	do.....	do.....	Rock Creek.
260	<i>Hybopsis amblops</i>	<i>Hybopsis amblops</i>	West Fork of Stone River.
261	do.....	do.....	Spring Creek.
262	do.....	do.....	Smith Fork; Eagle Creek; Wolf River.
264	do.....	do.....	Otter Creek.
266	do.....	do.....	Little South Fork.
267	do.....	do.....	Canada Creek; Rock Creek.
260	<i>Hybopsis kentuckiensis</i>	<i>Hybopsis kentuckiensis</i>	West Fork of Stone River.
261	do.....	do.....	Spring Creek.
263	do.....	do.....	Roaring River; Eagle Creek; Wolf River.
264	do.....	do.....	Beaver and Otter Creeks.
266	do.....	do.....	Little South Fork.
267	do.....	do.....	Canada Creek; Big South Fork; New River; Brimstone Creek.
262	<i>Hybopsis watauga</i>	<i>Hybopsis watauga</i>	Caneys Fork River; Smith Fork.
264	do.....	do.....	Obeys River.
262	<i>Hybopsis storerianus</i>	<i>Hybopsis storerianus</i>	Smith Fork.
263	<i>Rhinichthys atronasmus</i>	<i>Rhinichthys atronasmus</i>	Roaring River.
265	do.....	do.....	Cumberland River.
264	<i>Pheacobius uranops</i>	<i>Pheacobius uranops</i>	Obeys River; Eagle Creek; Wolf River.
265	do.....	do.....	Willis Creek.
260	<i>Zygonectes notatus</i>	<i>Fundulus notatus</i>	West Fork of Stone River.
261	do.....	do.....	Spring Creek.
261	<i>Fundulus catenatus</i>	<i>Fundulus catenatus</i>	Spring Creek; Round Lick Creek.
264	do.....	do.....	Obeys River; Eagle Creek; Wolf River.
265	do.....	do.....	Willis Creek.
266	do.....	do.....	Beaver and Otter Creeks.
268	do.....	do.....	Little South Fork; Canada Creek.
264	<i>Clupea chrysochloris</i>	<i>Pomolobus chrysochloris</i>	Obeys River.
265	do.....	do.....	Willis Creek.
260	<i>Labidesthes sicculus</i>	<i>Labidesthes sicculus</i>	West Fork of Stone River.
261	do.....	do.....	Spring Creek.
264	do.....	do.....	Obeys River.
260	<i>Lepomis pallidus</i>	<i>Lepomis pallidus</i>	West Fork of Stone River.
261	do.....	do.....	Spring Creek.
260	<i>Lepomis megalotis</i>	<i>Lepomis megalotis</i>	West Fork of Stone River.
261	do.....	do.....	Spring Creek; Round Lick Creek.
262	do.....	do.....	Smith Fork.
264	do.....	do.....	Obeys River; Eagle Creek; Wolf River.
266	do.....	do.....	Beaver and Otter Creeks.
268	do.....	do.....	Little South Fork; Canada Creek; Big South Fork; Brimstone Creek.
266	<i>Lepomis cyanellus</i>	<i>Apomotis cyanellus</i>	Beaver Creek.
262	<i>Ambloplites rupestris</i>	<i>Ambloplites rupestris</i>	Smith Fork.
263	do.....	do.....	Roaring River; Spring Creek, tributary to Roaring River.
264	do.....	do.....	Obeys River; Wolf River.
268	do.....	do.....	Little South Fork; Brimstone Creek.
260	<i>Micropterus dolomieu</i>	<i>Micropterus dolomieu</i>	West Fork of Stone River.
262	do.....	do.....	Smith Fork.
263	do.....	do.....	Roaring River.
264	do.....	do.....	Obeys River; Eagle Creek; Wolf River.
265	do.....	do.....	Cumberland River.
266	do.....	do.....	Otter Creek; Little South Fork.
268	do.....	do.....	Big South Fork; Brimstone Creek; Canada Creek.
261	do.....	do.....	Spring Creek.
265	<i>Micropterus salmoides</i>	<i>Micropterus salmoides</i>	Cumberland River; Willis Creek.
268	do.....	do.....	Big South Fork; Rock Creek; New River; Brimstone Creek.

Page.	Species as recorded.	Present identification.	Locality.
260	<i>Etheostoma simoterum atripinnis</i> .	<i>Ulocentra simotera</i> .	West Fork of Stone River; Spring Creek; Round Lick Creek.
262	do.	do.	Smith Fork.
264	do.	do.	Eagle Creek.
268	do.	do.	Canada Creek.
260	<i>Etheostoma caprodes</i> .	<i>Percina caprodes</i> .	West Fork of Stone River.
261	do.	do.	Spring Creek.
262	do.	do.	Smith Fork.
264	do.	do.	Obeys River; Eagle Creek; Wolf River.
265	do.	do.	Willis Creek; Otter Creek.
266	do.	do.	Little South Fork; Big South Fork.
268	do.	do.	New River; Brimstone Creek.
264	<i>Etheostoma macrocephalum</i> .	<i>Hadropterus macrocephalus</i> .	Obeys River; Eagle Creek.
268	do.	do.	Little South Fork.
262	<i>Etheostoma aspro</i> .	<i>Hadropterus aspro</i> .	Smith Fork.
265	do.	do.	Cumberland River.
268	do.	do.	Big South Fork; Brimstone Creek.
262	<i>Etheostoma evides</i> .	<i>Hadropterus evides</i> .	Caney Fork River; Smith Fork; Obeys River.
262	<i>Etheostoma stigmæum</i> .	<i>Ulocentra stigmæa</i> .	Smith Fork.
265	do.	do.	Willis Creek.
268	do.	do.	Little South Fork; Canada Creek; Big South Fork; Brimstone Creek.
260	<i>Etheostoma blennioides</i> .	<i>Diplesion blennioides</i> .	West Fork of Stone River.
261	do.	do.	Spring Creek.
262	do.	do.	Smith Fork.
263	do.	do.	Roaring River.
264	do.	do.	Obeys River; Eagle Creek; Wolf River.
266	do.	do.	Beaver and Otter Creeks; Little South Fork.
268	do.	do.	Canada Creek; Rock Creek; New River.
264	<i>Etheostoma cinereum</i> .	<i>Etheostoma cinereum</i> .	Obeys River; Eagle Creek; Wolf River.
268	do.	do.	Little South Fork; Canada Creek.
260	<i>Etheostoma rufilineatum</i> .	<i>Etheostoma rufilineatum</i> .	West Fork of Stone River.
261	do.	do.	Spring Creek.
262	do.	do.	Caney Fork River; Eagle Creek.
264	do.	do.	Little South Fork.
268	do.	do.	Big South Fork; Rock Creek.
260	<i>Etheostoma squamiceps</i> .	<i>Etheostoma squamiceps</i> .	West Fork of Stone River.
261	do.	do.	Spring Creek; Round Lick Creek.
263	<i>Etheostoma cœruleum</i> .	<i>Etheostoma cœruleum</i> .	Roaring River.
265	do.	do.	Obeys River; Eagle Creek; Wolf River; Willis Creek.
266	do.	do.	Otter Creek.
268	do.	do.	Little South Fork; Canada Creek; Big South Fork; Brimstone Creek.
265	<i>Etheostoma obeyense</i> .	<i>Etheostoma obeyense</i> .	Obeys River.
266	do.	do.	Beaver and Otter Creeks.
268	do.	do.	Little South Fork; Canada Creek.
265	<i>Etheostoma zonale</i> .	<i>Etheostoma zonale</i> .	Obeys River.
265	<i>Etheostoma copelandi</i> .	<i>Cottogaster copelandi</i> .	Do.
262	<i>Stizostedion vitreum</i> .	<i>Stizostedion vitreum</i> .	Smith Fork.
262	<i>Aplodinotus grunniens</i> .	<i>Aplodinotus grunniens</i> .	Do.
265	do.	do.	Cumberland River.
261	<i>Cottus bairdi</i> .	<i>Cottus ictalops</i> .	Round Lick Creek.
263	do.	do.	Roaring River and its tributary Spring Creek.
265	do.	do.	Obeys River.
268	do.	do.	Little South Fork.

1896. DAVID STARR JORDAN and BARTON WARREN EVERMANN.

The Fishes of North and Middle America: A Descriptive Catalogue of the Species of Fish-like Vertebrates Found in the Waters of North America North of the Isthmus of Panama. (Bull. U. S. Nat. Mus. no. 47, in 4 vol., pp. 1-3313, pls. I-cccxcii. Pt. 1, Oct. 3, 1896; pt. 2, Oct. 3, 1898; pt. 3, Nov. 26, 1898; pt. 4, June 26, 1900.)

In this work two species are described as new from the region covered by the present paper, viz, *Ulocentra gilberti* Evermann and Thoburn (p. 1049) from Clinch River at Walkers Ford, Tenn., and *Ulocentra meadia* Jordan and Evermann (p. 2852), from Indian Creek, a tributary of Powell River near Cumberland Gap, Tenn.

1899. DAVID STARR JORDAN.

A Manual of the Vertebrate Animals of the Northern United States including the District North and East of the Ozark Mountains, South of the Laurentian Hills, North of the Southern Boundary of Virginia, and East of the Missouri River, inclusive of Marine Species. By David Starr Jordan, president of Leland Stanford Junior University. (Eighth edition, newly revised and enlarged. 1899. pp. i-vi+1-397. Chicago. A. C. McClurg & Co.)

The following species are mentioned as inhabiting certain named streams in the region covered in this book:

Page.	Species as recorded.	Present identification.	Locality.
48	<i>Moxostoma crassilabre</i>	<i>Moxostoma breviceps</i>	Ohio River.
56	<i>Notropis spectrunculus</i>	<i>Notropis spectrunculus</i>	Tennessee River.
	<i>Notropis lacertosus</i>	<i>Notropis lacertosus</i>	Holston River.
59	<i>Notropis leuciodus</i>	<i>Notropis leuciodus</i>	Do.
60	<i>Notropis telescopus</i>	<i>Notropis telescopus</i>	Tennessee River.
61	<i>Phenacobius uranops</i>	<i>Phenacobius uranops</i>	Do.
63	<i>Hybopsis monachus</i>	<i>Hybopsis monachus</i>	Do.
65	<i>Phoxinus estor</i>	<i>Leuciscus vandoussul</i>	Cumberland and Tennessee Rivers.
67	<i>Phoxinus flammeus</i>	<i>Leuciscus flammeus</i>	Tennessee River.
68	<i>Hiodon selenops</i>	<i>Hiodon selenops</i>	Cumberland River.
70	<i>Amblyopsis speleus</i>	<i>Amblyopsis speleus</i>	Subterranean streams of Kentucky and Indiana, Mammoth Cave, etc.
83	<i>Typhlichthys subterraneus</i>	<i>Typhlichthys subterraneus</i>	Caves and wells in Kentucky, Tennessee, and Alabama.
83	<i>Chologaster agassizii</i>	<i>Chologaster agassizii</i>	Subterranean streams in Kentucky and Tennessee.
123	<i>Etheostoma asprellus</i>	<i>Crystallaria asprella</i>	Ohio River at Rising Sun, Ind.
124	<i>Etheostoma susanæ</i>	<i>Boleosoma susanæ</i>	Cumberland River; abundant in southern Kentucky.
125	<i>Etheostoma simotera</i>	<i>Ulocentra simotera</i>	Cumberland and Tennessee Basins.
128	<i>Etheostoma aurantiacum</i>	<i>Hypohomus aurantiacus</i>	Upper Tennessee River.
129	<i>Etheostoma niangæ spilotum</i>	<i>Hypohomus spilotus</i>	Kentucky River.
129	<i>Etheostoma squamatum</i>	<i>Hypohomus squamatus</i>	French Broad River.
130	<i>Etheostoma rufolineatum</i>	<i>Etheostoma rufolineatum</i>	Do.
131	<i>Etheostoma flabellare cumberlandicum</i>	<i>Etheostoma flabellare cumberlandicum</i>	Cumberland River.
132	<i>Etheostoma sagitta</i>	<i>Etheostoma sagitta</i>	Cumberland River, Ky.
132	<i>Etheostoma virgatum</i>	<i>Etheostoma virgatum</i>	Rockcastle River.
133	<i>Etheostoma luteovinctum</i>	<i>Etheostoma luteovinctum</i>	Stone River, Tenn.
351	<i>Catostomus rhothæcus</i>	<i>Catostomus rhothæcus</i>	French Broad River.
356	<i>Ulocentra gilberti</i>	<i>Ulocentra gilberti</i>	Clinch (misprinted Church) River.
356	<i>Ulocentra veracunda</i>	<i>Ulocentra veracunda</i>	Holston River.
356	<i>Ulocentra meadiæ</i>	<i>Ulocentra meadiæ</i>	East Tennessee.
357	<i>Etheostoma swannanoa</i>	<i>Etheostoma swannanoa</i>	Upper Tennessee River.

1902. BARTON WARREN EVERMANN.

Description of a new species of shad (*Alosa ohiensis*), with notes on other food fishes of the Ohio River. <Rept. U. S. Fish Com. for 1901 (May 26, 1902), pp. 273-288, with 6 figs.

In that paper the Ohio shad (*Alosa ohiensis*) was described as a new species, the Ohio River at the Falls being the type locality.

Besides the Ohio shad that paper records 20 other species from the Ohio River, chiefly at the Falls. The list is as follows:

Page.	Species as recorded.	Present identification.	Locality.
277	<i>Alosa ohiensis</i>	<i>Alosa ohiensis</i>	Falls of the Ohio.
284	<i>Polyodon spathula</i>	<i>Polyodon spathula</i>	Do.
285	<i>Acipenser rubicundus</i>	<i>Acipenser rubicundus</i>	Seen by the writer at the Falls of the Ohio in March, 1886.
285	<i>Scaphirhynchus platyrhynchus</i>	<i>Scaphirhynchus platyrhynchus</i>	Falls of the Ohio.
286	<i>Ictalurus furcatus</i>	<i>Ictalurus furcatus</i>	Do.
286	<i>Ictalurus punctatus</i>	<i>Ictalurus punctatus</i>	Do.
286	<i>Ictalurus anguilla</i>	<i>Ictalurus anguilla</i>	Do.
286	<i>Amiurus nebulosus</i>	<i>Ameiurus nebulosus</i>	Do.
286	<i>Leptops olivaris</i>	<i>Leptops olivaris</i>	Do.
286	<i>Ictiobus bubalus</i>	<i>Ictiobus bubalus</i>	Do.
286	<i>Carpiodes carpio</i>	<i>Carpiodes carpio</i>	Do.
286	<i>Cycleptus elongatus</i>	<i>Cycleptus elongatus</i>	Do.
287	<i>Carpiodes velifer</i>	<i>Carpiodes velifer</i>	Do.
287	<i>Catostomus commersonii</i>	<i>Catostomus commersonii</i>	Do.
287	<i>Moxostoma aureolum</i>	<i>Moxostoma aureolum</i>	Do.
287	<i>Cyprinus carpio</i>	<i>Cyprinus carpio</i>	Do.
287	<i>Anguilla chrysypa</i>	<i>Anguilla chrysypa</i>	Do.
287	<i>Hiodon alosoides</i>	<i>Hiodon alosoides</i>	Do.
287	<i>Dorosoma cepedianum</i>	<i>Dorosoma cepedianum</i>	Do.
287	<i>Stizostedion vitreum</i>	<i>Stizostedion vitreum</i>	Do.
287	<i>Aplodinotus grunniens</i>	<i>Aplodinotus grunniens</i>	Do.

1916. BARTON WARREN EVERMANN and SAMUEL F. HILDEBRAND.

Notes on the Fishes of East Tennessee. <Bull. U. S. Bureau of Fisheries, vol. xxxiv, 1914
(Sept. 21, 1916), pp. 431-452, 13 figs.

In September and October, 1893, the writer, assisted by the late Dr. Josiah T. Scovell, of Terre Haute, Ind., and Dr. Revere R. Gurley, then scientific assistant in the United States Fish Commission, examined many of the streams and springs of east Tennessee for the purpose of selecting a site for a fish-cultural station. Incident to this work considerable collections of fishes were made. They are reported on in this paper.

DISTRIBUTIONAL LIST OF SPECIES.

Following is a list of all the species of fishes which have been recorded, so far as the writer has been able to determine, from the Cumberland and Tennessee Basins and the other streams in the States of Kentucky and Tennessee. Records from that portion of the Ohio River bordering on Kentucky and that portion of the Mississippi bordering on Kentucky and Tennessee are included.

Under each species are given (1) each stream or locality from which recorded, (2) the authority for the record, (3) the date of the record, and (4) the name under which the species was recorded (omitted when identical with the present recognized name). If the locality is a type locality, the fact is stated. Thus, under *Ameiurus melas*, "Ohio River (Rafinesque, 1820, as *Silurus melas*, type, and 1820a)," means that the species whose accepted name is *Ameiurus melas* was recorded from the Ohio River by Rafinesque in 1820 as *Silurus melas*, new species (indicated by the word "type"), and that Rafinesque again recorded it from the same place in a second paper published by him in 1820. The titles of all papers referred to will be found in the bibliography.

The number in parenthesis following each species name is that of Jordan and Evermann's Check-List of Fishes and Fishlike Vertebrates of North and Middle America. < Rept. U. S. Fish Comm. for 1895 (1896), pp. 207-584.

1. *Ichthyomyzon concolor* (Kirtland). (9.) Common lamprey.
Upper waters of the Holston River (Cope, 1869, as *Petromyzon* sp.).
2. *Lampetra wilderi* Gage. (15.) Small black lamprey.
Falls of the Ohio (Rafinesque, 1820, as *Petromyzon nigrum*, type).
3. *Polyodon spathula* (Walbaum). (148.) Spoon-bill cat; paddlefish.
French Broad River near Asheville, N. C. (Cope, 1870, as *Polyodon folium*). Abundant in the river channels (Jordan and Brayton, 1878, as *Polyodon folium*). Cumberland River (Jordan and Brayton, 1878, as *Polyodon folium*). Wolf River and Ill-will Creek, Clinton County, Ky. (Kirsch, 1892). Falls of the Ohio (Evermann, 1902).
4. *Acipenser rubicundus* Le Sueur. (152.) Lake sturgeon; common fresh-water sturgeon.
Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Acipenser rubicundus* and *Acipenser maculosus*; Jordan and Brayton, 1878; and Duméril, 1870, as *Acipenser paranasimos*, type). Cumberland River near Kuttawa and Tennessee River near Paducah, Ky. (Woolman, 1892). Ohio River near Louisville, Ky. (Evermann, Mar., 1886, collector).
5. *Scaphirhynchus platorhynchus* (Rafinesque). (154.) Shovel-nosed sturgeon.
Falls of the Ohio (Evermann, 1902).
6. *Lepisosteus osseus* (Linnæus). (155.) Long-nosed gar.
Lower parts of the Ohio (Rafinesque, 1818b and 1818c, as *Sarchirus Vittatus*, type). Licking River and Slate Creek (Rafinesque, 1820, as *Sarchirus? argenteus*). Holston River near Saltville, Va., and Dandridge, Tenn. (Cope, 1869 and 1877, as *Lepidosteus huronensis*). Cumberland River at Nashville and generally abundant in the Tennessee Basin (Jordan and Brayton, 1878, as *Lepidosteus osseus*). Stone River near Nashville (Gilbert and Swain, 1884, collectors). Big Barren River near Bowling Green, Green River near Greensburg, Tradewater River near Dawson, Cumberland River near Kuttawa, Tennessee River near Paducah, Powell River near Cumberland Gap, Obion River near Cypress, Horse Creek near Garratsville, Big Creek near Big Creek station, Lost Creek near Hazard, Troublesome Creek near

Dwarf, and Little Sandy River near its mouth, Ky. (Woolman, 1892). Indian, Willis, and Ill-will Creeks, Clinton County, Ky. (Kirsch, 1892). Smith Fork near Lancaster, Tenn., Obeys River near Olympus, Tenn., and Cumberland River near mouth of Willis Creek, Cumberland County, Ky. (Kirsch, 1893).

7. *Lepisosteus platostomus* Rafinesque. (156.) Short-nosed gar.

Cumberland and Tennessee Rivers (Rafinesque, 1820, type). Tennessee River near Huntsville (Agassiz 1854, as *Lepidosteus platostomus*; and Jordan and Brayton, 1878, as *Lepidosteus platystomus*). Tradewater River near Dawson, Tennessee River near Paducah, and Bayou de Chien near Moscow, Ky. (Woolman, 1892).

8. *Lepisosteus tristoechus* (Bloch and Schneider). (157.) Alligator gar.

Ohio River as far up as the Falls (Rafinesque, 1818a, as *Litholepis adamantinus*, type).

9. *Amia^a calva* Linnæus. (159.) Bowfintus; grindle.

Tennessee River (mill ponds) near Huntsville (Agassiz, 1854, and Jordan and Brayton, 1878). Bayou de Chien near Moscow, Ky. (Woolman, 1892).

10. *Ictalurus furcatus* (Le Sueur). (214.) Forked-tail cat; blue cat; poisson bleu.

Tennessee River near Florence (Gilbert and Swain, 1884, collectors). Falls of the Ohio (Evermann, 1902).

11. *Ictalurus punctatus* (Rafinesque). (215.) Channel cat; spotted cat.

Ohio River (Rafinesque, 1818, as *Silurus punctatus*, type; 1820, as *Silurus maculatus*, type; *Silurus pallidus*, type; *Silurus cerulescens*, type; *Silurus argenteus*, type; *Silurus argyrus*, type; *Silurus argyreus* var. *erythroptera*, type; *Silurus argyrus* var. *marginatus*, type; *Silurus argyrus* var. *lateralis*, type; and *Silurus argyrus* var. *leucoptera*, type). Tennessee River (Rafinesque, 1832, as *Pimelodus lutescens*). Tennessee River near Huntsville (Agassiz, 1854, as *Pimelodus cærulescens*). French Broad River (Jordan, 1876, and Cope, 1877, as *Ictalurus cærulescens*). Cumberland River at Cumberland Falls (Evermann, 1878, collector). Very abundant in the Cumberland and Tennessee Basins (Jordan and Brayton, 1878, as *Ichthælorus punctatus*). French Broad River near Hot Springs, N. C. (Jordan, 1889). Rolling Fork of Salt River near Booth and New Haven, Rough Creek near Hartford, Pond Creek near Rockport, Big Barren River and Drake Creek near Bowling Green, Green River near Greensburg, Cumberland River near Kuttawa, Tennessee River near Paducah, Mayfield Creek near Hickory Grove, Obion River near Cypress; Bayou de Chien near Moscow, North Fork of Kentucky River near Hazard, Triplet Creek near Farmer, and Little Sandy River near its mouth, Ky. (Woolman, 1892). Indian and Willis Creeks, Clinton County, Ky. (Kirsch, 1892). Smith Fork near Lancaster, Tenn., and Obeys River near Olympus, Tenn. (Kirsch, 1893). Falls of the Ohio (Evermann, 1902). Ball Creek near Tazewell, and Clinch River at Walkers Ford, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

12. *Ictalurus anguilla* Evermann and Kendall. (216 +.) Eel cat; willow cat.

Ohio River at Louisville (Evermann, 1902).

13. *Ameiurus lacustris* (Walbaum). (219.) Great forked-tail cat; Mississippi cat.

Cumberland River near Nashville and at Cumberland Falls (Jordan and Brayton, 1878, as *Ameiurus nigricans*). South Fork near Lancaster, Tenn. (Kirsch, 1893, as *Ameiurus nigricans*).

14. *Ameiurus natalis* (Le Sueur). (224.) Yellow cat.

Ohio River (Rafinesque, 1820, as *Silurus lividus* var. *fuscatus*, type, and as *Silurus cupreus*). Tennessee River near Huntsville (Agassiz, 1854, as *Pimelodus catus*). Cumberland River near Nashville, and rather abundant in the Tennessee River (Jordan and Brayton, 1878, as *Ameiurus natalis cupreus*). Clear Fork of the Cumberland near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883). Huntsville, Ala. (Gilbert and Swain, collectors, 1884). Big Barren River near Bowling Green, Green River near Greensburg, Clear Fork of Cumberland River near Pleasant View, and Mayfield Creek near Hickory Grove, Ky. (Woolman, 1892). Spring Creek near Spring Creek Station and Round Lick Creek near Watertown, Tenn. (Kirsch, 1893).

15. *Ameiurus nebulosus* (Le Sueur). (226.) Common bullhead.

Big Barren River near Bowling Green, Green River near Greensburg, Cumberland River near Pineville, Spring Creek in Clinton County, Mayfield Creek near Hickory Grove, and Bayou de Chien near Moscow, Ky. (Woolman, 1892). Indian, Smith, and Albany Creeks, Clinton County, Ky. (Kirsch,

^a Locally known as dogfish.

1892). Obeys River near Olympus, Tenn., Beaver Creek in Wayne County, Ky., and Otter Creek between Monticello and Albany, Ky. (Kirsch, 1893). Falls of the Ohio (Evermann, 1902).

16. *Ameiurus melas* (Rafinesque). (227.) Little black bullhead.

Ohio River (Rafinesque, 1820, as *Silurus melas*, type, and 1820a). Kentucky River (Rafinesque, 1820a, as *Silurus xanthocephalus*, type). Falls of the Ohio (Jordan, 1877a).

17. *Leptops olivaris* (Rafinesque). (230.) Big yellow cat; mud cat; goujon.

Ohio River (Rafinesque, 1818, as *Silurus olivaris*, type; 1820, as *Silurus viscosus*, type; *Silurus nebulosus* and *Silurus limosus*). Rockcastle River, Ky. (Jordan, 1876). Rockcastle River near Livingston, Ky., and Cumberland River below Cumberland Falls (Jordan and Brayton, 1878, as *Pelodichthys olivaris*). Abundant in the channels of the larger streams, several specimens from the French Broad (Jordan and Brayton, 1878). Cumberland River near Nashville (Gilbert and Swain, 1884, collectors). Watauga River near Elizabethton, Tenn., French Broad River near Hot Springs, N. C., and South Fork of the Swannanoa (Hat Creek) near Black Mountain, N. C. (Jordan, 1889). Rolling Fork of Salt River near Booth, Big Barren River near Bowling Green, Green River and Pitman Creek near Greensburg; and Cumberland River near Barbourville, Ky. (Woolman, 1892). Smith Fork near Lancaster, Tenn. (Kirsch, 1893). Falls of the Ohio (Evermann, 1902). Clinch River at Walkers Ford, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

18. *Noturus flavus* Rafinesque. (231.) Stone cat; little yellow cat.

Falls of the Ohio (Rafinesque 1818c, type, and 1820). Ohio River (Rafinesque 1819, as *Noturus luteus*). Tennessee River near Florence (Gilbert and Swain, collectors, 1884). Triplet Creek near Farmer, Ky. (Woolman, 1892). Smith Fork near Lancaster, and Obeys River and Eagle Creek near Olympus, Tenn. (Kirsch, 1893).

19. *Schilbeodes gyrinus* (Mitchill). (232.) Mad tom.

Mayfield Creek near Hickory Grove, Rough Creek near Hartford, and Bayou de Chien near Moscow, Ky. (Woolman, 1892, as *Noturus gyrinus*).

20. *Schilbeodes eleutherus* (Jordan). (239.) Mad tom.

Big Pigeon River, Cocke County, Tenn. (Jordan and Brayton, 1877, type, and Jordan and Brayton, 1878, as *Noturus eleutherus*). French Broad River (Jordan, 1878, as *Noturus eleutherus*). Hines Creek, Clinton County, Ky. (Gilbert and Swain, 1884, collectors). French Broad River near Hot Springs, N. C. (Jordan, 1889). Green River near Greensburg, Ky. (Woolman, 1892, as *Noturus eleutherus*). Clinch River at Walkers Ford, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

21. *Schilbeodes miurus* (Jordan). (240.) Mad tom.

Clinch River near Clinton, Tenn. (Gilbert and Swain, collectors, 1884). North Fork of Holston River near Saltville, Va. (Jordan, 1889, as *Noturus miurus*). Rolling Fork of Salt River near Booth, New Haven, and New Market, Rough Creek near Hartford, Big Barren River near Bowling Green, Little Barren River near Osceola, Pitman Creek near Greensburg, Mayfield, Creek near Hickory Grove, Horse Creek near Garratsville, Middle Fork of Kentucky River near Hyden, Blaine Creek near Catalpa, and Little Sandy River near its mouth, Ky. (Woolman, 1892, as *Noturus miurus*). Clinch River at Walkers Ford, Tenn., Tennessee River near Knoxville, and Chickamauga Creek near Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

22. *Ictiobus cyprinella* (Cuvier and Valenciennes). (270.) Common buffalo.

Indian Creek, Clinton County, Ky. (Kirsch, 1892).

23. *Ictiobus urus* (Agassiz). (271.) Mongrel buffalo.

Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Carpiodes urus*, type; Jordan, 1878, and Jordan and Brayton, 1878, as *Bubalichthys urus*).

24. *Ictiobus bubalus* (Rafinesque). (273.) Smallmouth buffalo.

Ohio River (Rafinesque, 1819, as *Ambloodon bubalus*, type, and Rafinesque, 1820a, as *Catostomus bubalus*). Big Barren River near Bowling Green, lower Cumberland River near Kuttawa, Ky., Powell River near Cumberland Gap, Tenn., Bayou de Chien near Moscow, Ky. (Woolman, 1892). Falls of the Ohio (Evermann, 1902).

25. *Carpiodes carpio* (Rafinesque). (274.) Carp sucker.

Falls of the Ohio (Rafinesque, 1820a, as *Catostomus carpio*, type). Tennessee River (Cope, 1877, and Jordan, 1878, as *Carpiodes bison*). Lower Tennessee River (Jordan and Brayton, 1878, as *Carpiodes bison*). Rolling Fork of Salt River near Booth, and Tradewater River near Dawson Springs, Ky. (Woolman, 1892). Falls of the Ohio (Evermann, 1902).

26. *Carpiodes difformis* Cope. (275.) Small carp sucker.

Cumberland River at Nashville (Jordan and Brayton, 1878, and Jordan, 1878, as *Carpiodes cutisan-serinus*). Cumberland River near Kuttawa, Obion River near Cypress, and Big Sandy River near its mouth (Woolman, 1892). Caney Fork River and Smith Fork near Lancaster, Tenn., and Willis Creek at its mouth in Clinton County, Ky. (Kirsch, 1893, as *Ictiobus difformis*).

27. *Carpiodes velifer* (Rafinesque). (277.) Quillback.

Tennessee River near Paducah, Mayfield Creek near Hickory Grove, Obion River near Cypress, Redbird Creek near Big Creek, Middle Fork of Kentucky River near Hyden, North Fork Kentucky River near Hazard, Robinson Creek near Robinson, Levisa Fork of Big Sandy River near Pikeville, John and Coon Creeks near Zebulon, and Little Sandy River (Woolman, 1892). Falls of the Ohio (Evermann, 1902).

28. *Cycleptus elongatus* (Le Sueur). (279.) Blackhorse.

Ohio River (Rafinesque, 1819, as *Cycleptus nigrescens* and (?) *Ambloodon niger*, types). Ohio River as far as Pittsburgh (Rafinesque, 1820a, as *Cycleptus elongatus*). Ohio River (Rafinesque, 1820a, as *Cycleptus nigrescens*). Cumberland River near Nashville (Jordan and Brayton, 1878). Lower Cumberland River near Kuttawa, Ky. (Woolman, 1892). Falls of the Ohio (Evermann, 1902).

29. *Catostomus commersonii* (Lacépède). (300.) White sucker; common sucker.

All streams and ponds in Kentucky (Rafinesque, 1820a, as *Catostomus flexuosus*, type). Tennessee River near Huntsville (Agassiz, 1854, as *Catostomus communis*). Holston River (Cope, 1869, as *Catostomus communis*). Clinch and French Broad Rivers (Cope, 1877, as *Catostomus teres*). Very common in the Cumberland (Jordan and Brayton, 1878). Clear Fork of the Cumberland near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883, as *Catostomus teres*). Generally abundant in the Tennessee Basin, South Fork of Holston River near Holstein Mills, Va., Middle Fork of Holston near Marion and Glade Spring, Va., Beaver Creek near Bristol, and Watauga River near Elizabethton, Tenn., Swannanoa River near Asheville, N. C., South Fork (Hat Creek) of Swannanoa River near Black Mountain station, and Spring Creek near Hot Springs, N. C. (Jordan, 1889, as *Catostomus teres*). Rockcastle River above the mouth of the Little Rockcastle and near Livingston, Smoky Fork of Richland Creek near its mouth, Clear Fork of the Cumberland, and Wolf and Briar Creeks near Pleasant View, Whitley County, Mayfield Creek near Hickory Grove, Hector Creek near Big Creek, Goose Creek near Garratsville, and Bull Creek near Hyden, Ky. (Woolman, 1892). Wolf River and Indian and Willis Creeks, Clinton County, Ky. (Kirsch, 1892, as *Catostomus teres*). Spring Creek near Spring Creek station, Ky. (Kirsch, 1893, as *Catostomus teres*). Falls of the Ohio (Evermann, 1902). Ball Creek near Tazewell; Arnwine Spring Creek near Mount Verd, Eastaunaula Creek near Athens, and Roaring Fork near Greenville, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

30. *Hypentelium nigricans* (Le Sueur). (304.) Hog sucker.

Falls of the Ohio (Rafinesque, 1818b, as *Exoglossum* (*Hypentelium*) *macropterum*, type). Below the Falls of the Ohio (Rafinesque, 1820a, as *Catostomus xanthopterus*, type). Tennessee River near Huntsville (Agassiz, 1854). Holston River (Cope, 1869). Powell River, Tenn. (Jordan, 1876). Clinch and French Broad Rivers (Cope, 1877). Common in the Cumberland (Jordan and Brayton, 1878). Clear Fork of the Cumberland near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883). South Fork of Holston at Holstein Mills, Va., Middle Fork of Holston at Marion and Glade Spring, Va., Beaver Creek near Bristol, Tenn., Watauga and Doe Rivers near Elizabethton, Tenn., Swannanoa River at Asheville, N. C., South Fork (Hat Creek) of the Swannanoa at Black Mountain station, N. C., and Spring Creek at Hot Springs, N. C. (Jordan, 1889). Rolling Fork of Salt River near Booth, New Haven, and New Market, Rough Creek near Hartford, Big Barren River near Bowling Green, Drake Creek near Bowling Green, Beaver Creek near Glasgow, Little Barren River near Osceola, Green River and Pitman Creek near Greensburg, Tradewater River at Dawson Springs, Cumberland River near Kuttawa, Clear Creek near Wildie, Little Rockcastle River near Livingston, Rockcastle River near Hazel Patch and Livingston, Cumberland River at Barbourville and Pineville, Richland Creek near Barbourville, Smoky Fork of Richland Creek near its mouth, Straight Creek near Pineville, Indian Creek and Albany

Branch in Clinton County, Clear Fork of the Cumberland, Wolf Creek, and Briar Creek near Pleasant View, Powell River near Cumberland Gap, Mayfield Creek near Hickory Grove, Horse Creek near Garratsville, Hector, Redbird (South Fork of the Kentucky), and Big Creeks near Big Creek, Bull Creek, Middle Fork of the Kentucky, and Cutshin Creek near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, and Left Troublesome Creek near Hindman, Right Fork of Beaver Creek near Lackey, Robinson and Shelby Creeks near Robinson, Island Creek and Levisa Fork of the Big Sandy near Pikeville, Coon Creek near Zebulon, and Blaine Creek near Catalpa, and Triplet Creek near Farmer, Ky. (Woolman, 1892). Indian, Willis, Spring, and Albany Creeks, Clinton County, Ky. (Kirsch, 1892). West Fork of Stone River near Murfreesboro, Spring Creek at Spring Creek Station, Caney Fork River near Lancaster, Smith Fork near Lancaster, Roaring River near Windle, Obeys River and Eagle Creek near Olympus, and Wolf River near Byrdstown, Tenn., Little South Fork of Cumberland River 8 miles above its mouth, Rock Creek near Whitley station, Ky., Willis Creek at its mouth, Cumberland County, Ky., Beaver Creek, Wayne County, Canada Creek, New River at New River station, Otter Creek between Monticello and Albany, Big South Fork of the Cumberland near mouth of Rock Creek, and Brimstone Creek near New River station, Ky. (Kirsch, 1893). Ball Creek near Tazewell, Tennessee River near Knoxville, Eastaunaula Creek near Athens, Arnwine Spring near Mount Verd, and Tellico River at Tellico Plains, Tenn., Chickamauga Creek at Lee & Gordon's mill, Ga., Indian Creek near Cumberland Gap, Clinch River at Walkers Ford, and Roaring River near Greenville, Tenn. (Evermann, Scovell and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

31. *Erimyzon sucetta* (Lacépède). (313.) Chub sucker.

French Broad River (Jordan, 1876). Cumberland and Rockcastle Rivers, Ky. (Jordan, 1876). Clinch River (Jordan and Brayton, 1878). Cumberland River near Nashville and Rockcastle River near Livingston, Ky. (Jordan and Brayton, 1878). Cumberland River (Jordan, 1878a; collector, Prof. A. Winchell). Florence, Ala. (Gilbert and Swain, 1884, collectors).

32. *Erimyzon sucetta oblongus* Mitchell. (313a.) Northern chub sucker.

Tradewater River near Dawson, Rockcastle River near Livingston, and Mayfield Creek near Hickory Grove, Ky. (Woolman, 1892).

33. *Minytrema melanops* (Rafinesque). (314.) Spotted sucker.

Ohio River (Rafinesque, 1820a, as *Catostomus melanops*, type). Tennessee River near Huntsville (Agassiz, 1854, as *Catostomus melanops*, and Jordan and Brayton, 1878). Tennessee River (Jordan, 1878). Cumberland River near Nashville (Jordan and Brayton, 1878). Beaver Creek near Glasgow, Ky. (Woolman, 1892).

34. *Moxostoma anisurum* (Rafinesque). (316.) White-nosed sucker.

All over the Ohio and the larger streams as far as Pittsburgh (Rafinesque, 1820a, as *Catostomus anisurum* type). Clinch River and Chickamauga Creek (Jordan and Brayton, 1878, and Jordan, 1878a, as *Myxostoma velatum*). Clear Fork of the Cumberland near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883, as *Moxostoma velatum*). Richland Creek, Pulaski County, Tenn. (Gilbert and Swain, 1884, collectors). Little Sandy River, Ky. (Gilbert and Henshall, 1888, collectors; and Woolman, 1892). Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View, Whitley County, Ky. (Jordan, 1883, collector; and Woolman, 1892).

35. *Moxostoma aureolum* (Le Sueur). (325.) Common redhorse.

Ohio River (Rafinesque, 1818, as *Catostomus erythrurus*, type). Tennessee River (Rafinesque, 1820, as *Catostomus erythrurus*). Cumberland River (Rafinesque, 1820, as *Catostomus erythrurus*). Kentucky River (Rafinesque, 1820a, as *Catostomus erythrurus*). Ohio River (Rafinesque, 1820a, as *Rutilus melanurus*, type). Tennessee River near Huntsville (Agassiz, 1854, as *Catostomus Duquesnii*). Holston River (Cope, 1869, as *Teretulus Duquesnii*). French Broad River and Rockcastle River (Jordan, 1876, as *Moxostoma duquesnei*). Holston River (Cope, 1877, as *Ptychostomus erythrurus*). Common in the Cumberland (Jordan and Brayton, 1878, and Jordan, 1878a, as *Myxostoma macrolepidotum duquesnii*). Holston, Clinch, French Broad, and Chickamauga Rivers (Jordan and Brayton, 1878, as *Myxostoma macrolepidotum duquesnii*). Clear Fork of the Cumberland near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883, as *Moxostoma macrolepidotum duquesnii*). Watauga River near Elizabethton, Tenn., and French Broad River and Spring Creek near Hot Springs, N. C. (Jordan, 1889, as *Moxostoma duquesnei*). Duck River near Columbia, Tenn. (Gilbert and Swain, 1884, collectors). Middle Fork of

Holston River near Marion and Glade Spring, Va., North Fork of Holston River near Saltville, Va., Beaver Creek near Bristol, Tenn., Rolling Fork of Salt River near Booth, New Haven, and New Market, Pond Creek near Rockport, Rough Creek near Hartford, Big Barren River and Drake Creek near Bowling Green, Beaver Creek near Glasgow, Little Barren River near Osceola, upper Green River and Pitman Creek near Greensburg, Tradewater River near Dawson, lower Cumberland River near Kuttawa, Clear Creek near Wildie, Little Rockcastle River near Livingston, Rockcastle River just above the mouth of Little Rockcastle River and near Livingston, Cumberland River and Richland Creek near Barbourville, Smoky Fork of Richland Creek above its mouth, Cumberland River and Straight Creek near Pineville, Clear Fork of the Cumberland, Wolf Creek, and Briar Creek near Pleasant View, Whitley County, Tennessee River near Paducah, Ky., Powell River near Cumberland Gap, Tenn., Mayfield Creek near Hickory Grove, Bayou de Chien near Moscow, Horse and Goose Creeks near Garratsville, Redbird Creek near Big Creek, Bull and Cutshin Creeks and Middle Fork of the Kentucky near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, Beaver Creek near Lackey, Robinson Creek near Robinson, Island Creek and Levisa Fork of the Big Sandy near Pikeville, Coon Creek near Zebulon, Blaine Creek near Catalpa, Licking River and Triplet Creek near Farmer, and Little Sandy River, Ky. (Woolman, 1892). West Fork of Stone River near Murfreesboro, Spring Creek near Springcreek railway station, Caney Fork near Lancaster, Obeys River and Eagle Creek near Olympus, and Wolf River near Byrdstown, Tenn., Cumberland River in Cumberland County, Willis Creek at its mouth in Cumberland County, Beaver Creek in Wayne County, Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near mouth of Canada Creek, Big South Fork of the Cumberland near Whitley station, Canada Creek, and Rockcastle River, Ky. (Kirsch, 1893). Falls of the Ohio (Evermann, 1902).

36. *Moxostoma breviceps* (Cope). (330.) Short-headed redbhorse.
Little Sandy River (Gilbert and Henshall, 1888, collectors; and Woolman, 1892).
37. *Placopharynx duquesnii* (Le Sueur). (335.) Big-jawed sucker.
Ohio River as far as Pittsburgh (Rafinesque, 1820a, as *Catostomus duquesnii*). French Broad River at Alexanders, N. C. (Evermann, July, 1878, collector).
38. *Lagochila lacera* Jordan and Brayton. (336.) Hare-lip sucker.
Chickamauga Creek near Ringgold, Ga. (Jordan and Brayton, 1877, type). Elk River near Estill Springs, Tenn. (Jordan and Brayton, 1877 and 1878). Chickamauga Creek and Elk River (Jordan, 1878a, as *Quassilabia lacera*). Clinch River, Tenn. (Jordan and Gilbert, 1882). Chickamauga Creek and Elk River (Jordan, 1882). North Fork of Holston River near Saltville, Va. (Jordan, 1889). Clear Creek near Wildie, and Rockcastle River near Livingston, Ky. (Woolman, 1892). West Fork of Stone River near Murfreesboro, Little South Fork of the Cumberland near mouth of Canada Creek, and Canada Creek, Tenn. (Kirsch, 1893).
39. *Campostoma anomalum* (Rafinesque). (339.) Stone-roller; rot-gut minnow.
Licking River (Rafinesque, 1820, as *Rutilus anomalus*, type). Falls of the Ohio (Rafinesque, 1820a, as *Catostomus melanotus*, type). Licking River, etc. (Rafinesque, 1820a, as *Rutilus anomalus*). Spring Branch near Huntsville (Agassiz, 1854, as *Chondrostoma prolixum*). Holston River, Va. (Günther, 1868, as *Campostoma dubium*). Holston River, Va. (Cope, 1868). Tributaries of the Holston (Cope, 1869). Cumberland and Rockcastle Rivers, Ky. (Jordan and Gilbert, 1876, collectors, and Jordan, 1876). French Broad and Powell Rivers, Tenn. (Jordan, 1876). French Broad and Clinch Rivers (Cope, 1877). Cumberland River (Cope, 1877). Cumberland River at Cumberland Falls (Evermann, collector, June, 1878). Abundant in the Cumberland River (Jordan and Brayton, 1878). In the clear pools of the Swannanoa at the foot of Black Mountain, extremely abundant (Jordan and Brayton, 1878, as *Campostoma anomalum prolixum*). Clear Fork of the Cumberland and Wolf and Briar Creeks, near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883). Rockcastle River near Livingston, Tennessee River near Florence, Clinch River near Clinton, Tenn., and Wolf Creek in Cocke County, Tenn. (Gilbert and Swain, collectors, 1884). Little Sandy River (Gilbert and Henshall, 1888, collectors). South Fork of the Holston at Holstein Mills, Va., Middle Fork of the Holston near Marion and Glade Spring, Va., North Fork of the Holston near Saltville, Va., Beaver Creek near Bristol and Watauga and Doe Rivers near Elizabethton, Tenn., Spring Creek near Hot Springs, Swannanoa River near Asheville, and South Fork of the Swannanoa at Black Mountain station, N. C. (Jordan, 1889). Tennessee River near White-side, Tenn. (Henshall, 1889). Willis, Spring, Smith, and Albany Creeks in Clinton County, Ky.

(Kirsch, 1892). Rolling Fork of Salt River near Booth, Rough Creek at Hartford, Big Barren River at Bowling Green, Drake Creek near Bowling Green, Beaver Creek near Glasgow, Little Barren and Green Rivers and Pitman Creek near Greensburg, Tradewater River near Dawson, Lower Cumberland River near Kuttawa, Clear Creek near Wildie, Rockcastle River near mouth of Little Rockcastle River, Cumberland River near Barbourville, Richland Creek near Barbourville, Straight Creek near Pineville, Smith Creek, Spring Creek, Albany Branch, and pond near Albany, Clinton County, Ky., Clear Fork of the Cumberland, Wolf Creek and Briar Creek near Pleasant View, Whitley County, Ky., Powell River near Cumberland Gap, Goose Creek near Garratsville, Hector Creek, Redbird Creek, and Big Creek near Big Creek post office, Bull Creek, Middle Fork of the Kentucky, and Cutshin Creek near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, Left Troublesome Creek near Hindman, Right Fork of Beaver Creek near Lackey, Robinson and Shelby Creeks near Robinson, Island Creek near Pikeville, Little Fork of Big Sandy River near Pikeville, John and Coon Creeks near Zebulon, and Licking River and Triplet Creek near Farmer, Ky. (Woolman, 1892). West Fork of Stone River near Murfreesboro, Spring Creek near Springcreek railway station, Round Lick Creek near Watertown, Smith Fork near Lancaster, Roaring River near Windle, Eagle Creek near Olympus, Wolf River near Byrdstown, Beaver Creek in Wayne County, Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near mouth of Canada Creek, Canada Creek near its mouth, Rock Creek near Whitley station, New River, Ky., and Brimstone Creek near New River railway station (Kirsch, 1893). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Clinch River at Walkers Ford, Roaring Fork near Greenville, Eastaunaula Creek near Athens, Tellico River at Tellico Plains, Tenn., and Chickamauga Creek near Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

40. *Chrosomus erythrogaster* Rafinesque. (345.) Red-bellied dace.

Kentucky River (Rafinesque, 1820a, as *Luxilus* or *Chrosomus erythrogaster*, type). Tennessee River near Huntsville (Agassiz, 1854; and Jordan and Brayton, 1878). Rockcastle and Cumberland Rivers (Jordan, 1876). Tennessee River and tributaries of Rockcastle River (Jordan and Brayton, 1878). Wolf and Briar Creeks near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883). Florence, Ala., and Clinch River near Clinton, Tenn. (Gilbert and Swain, 1884, collectors). Tennessee River at Whiteside, Tenn. (Henshall, 1889). Indian, Smith, and Albany Creeks in Clinton County, Ky. (Kirsch, 1892). Rockcastle River near Livingston, Ky. (Jordan and Gilbert, 1876, collectors; Woolman, 1892). Smith Creek, Spring Creek, Albany Branch and Indian Creek (Kirsch, 1889 and 1890, collector; Woolman, 1892). Tennessee River near Paducah, Clear Fork of the Cumberland, Wolf Creek, and Briar Creek near Pleasant View, Whitley County, Ky. (Jordan, 1883, collector; Woolman, 1892). Roaring River near Windle, Spring Creek at Springcreek station, Tenn., and Beaver Creek in Wayne County, Ky. (Kirsch, 1893). Roaring Fork near Greenville, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

41. *Hybognathus nuchale* Agassiz. (353.) Silvery minnow; gudgeon.

Tennessee River (Gilbert and Swain, 1884, collectors). Pond Creek near Rockport, Rough Creek at Hartford, Beaver Creek near Glasgow, lower Cumberland River near Kuttawa, Mayfield Creek at Hickory Grove, Obion River near Cypress, Bayou de Chien near Moscow, and mouth of the Big Sandy River (Gilbert and Henshall, 1888, collectors). Little Sandy River (Gilbert and Henshall, 1888, collectors; Woolman, 1892). Smith Fork near Lancaster, Tenn. (Kirsch, 1893, as *Hybognathus nuchalis*).

42. *Pimephales promelas* Rafinesque. (362.) Black-head minnow.

Pond near Lexington, Ky. (Rafinesque, 1820a, type). Tributaries of the Cumberland above Nashville (Prof. A. Winchell, collector; Jordan and Brayton, 1878).

43. *Pimephales notatus* (Rafinesque). (363.) Blunt-nosed minnow.

Ohio River (Rafinesque, 1820a, as *Minnilus notatus*, type). Chickamauga Creek near Ringgold, Ga. (Jordan and Brayton, 1878, as *Hyborhynchus notatus*). Rockcastle River, Ky. (Jordan, 1876, as *Hyborhynchus notatus*). Abundant everywhere in the Cumberland (Jordan and Brayton, 1878, as *Hyborhynchus notatus*). Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883, as *Hyborhynchus notatus*). Rolling Fork, Ky. (Gilbert and Swain, 1884, collectors). Indian, Smith, and Albany Creeks in Clinton County, Ky. (Kirsch, 1892). Rolling Fork of Salt River near Booth and New Haven, Rough Creek near Hartford, Big Bar-

ren River and Drake Creek near Bowling Green, Beaver Creek near Glasgow, Tradewater River near Dawson, lower Cumberland River near Kuttawa, Clear Creek near Windle, Rockcastle River above the mouth of Little Rockcastle River, Cumberland River near Barbourville, Indian Creek in Clinton County, Clear Fork of the Cumberland, Wolf and Briar Creeks near Pleasant View, Whitley County, Ky., Powell River near Cumberland Gap, Tenn., Mayfield Creek at Hickory Grove, Ky., Obion River near Cypress, Bayou de Chien near Moscow, Horse Creek and Goose Creek near Garratsville, Hector Creek and Redbird Creek (South Fork of the Kentucky) and Big Creek near Big Creek post office, Bull Creek, Middle Fork, and Cutshin Creek near Hyden, North Fork of the Kentucky River and Lot Creek near Hazard, Troublesome Creek near Hazard, Left Troublesome Creek at Hindman, Right Fork of Beaver Creek near Lackey, Shelby and Robinson Creeks near Robinson, Island Creek and Levisa Fork of the Big Sandy near Pikeville, John and Coon Creeks near Zebulon, and Blaine Creek near Catalpa, Triplet Creek and Licking River near Farmer, Ky., and Little Sandy River (Gilbert and Henshall, 1888, collectors; Woolman, 1892). West Fork of Stone River near Murfreesboro, Spring Creek at Spring Creek railway station, Ky., Round Lick Creek at Watertown, Smith Fork near Lancaster, and Wolf River near Byrdstown, Beaver Creek in Wayne County, Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near mouth of Canada Creek, and Canada Creek near its mouth (Kirsch, 1893). Chickamauga Creek near Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

44. *Semotilus atromaculatus* (Mitchill). (368.) Horned dace; creek chub.

In the Kentucky and several other rivers (Rafinesque, 1820a, as *Semotilus dorsalis*, type). Creeks of Kentucky, etc. (Rafinesque, 1820a, as *Semotilus* [*Semotilus*] *cephalus*, type). Kentucky River near Estill (Rafinesque, 1820a, as *Semotilus diplemia*, type). Powell, French Broad, Rockcastle, and Cumberland Rivers (Jordan, 1876, as *Semotilus corporalis*). Tributaries of Clinch and French Broad Rivers, chiefly in small mountain streams, and Rockcastle River at Livingston, Ky. (Jordan and Brayton, 1878, as *Semotilus corporalis*). Rolling Fork of Salt River near New Haven, Drake Creek near Bowling Green, Beaver Creek near Glasgow, Cumberland River and Richland Creek near Barbourville, Smoky Fork near its mouth, and Rockcastle River near Livingston (Gilbert, 1884, collector). Rockcastle River near Livingston (Jordan and Gilbert, 1876, collectors). Spring Creek, Albany Branch, and pond near Albany (Kirsch, 1889-90, collector). Mayfield Creek near Hickory Grove, Goose, Redbird, and Left Troublesome Creeks, an old bayou of Bull Creek, and Blaine Creek near Catalpa (Woolman, 1892). Round Lick Creek at Watertown, Roaring River near Windle, Spring Creek and its tributaries near Springcreek station, Tenn., Beaver Creek in Wayne County, Ky., and Canada Creek near its mouth (Kirsch, 1893). Ball Creek near Tazewell and Eastaunaula Creek and Norvel Spring Branch near Athens, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

45. *Leuciscus vandoisulus* Cuvier and Valenciennes. (390.) Shiner.

Elk River near Estill Springs and Stone River near Murfreesboro, Tenn. (Jordan and Brayton, 1878, as *Gila estor*, type). Tennessee and Cumberland Rivers (Jordan, 1878, as *Gila estor*).

46. *Leuciscus flammeus* (Jordan and Gilbert). (397.) Red-bellied minnow.

Holston River near Knoxville (Cope, 1870, as *Hemitremia vittata*, type, and Jordan and Brayton, 1878). Big Laurel River, Ky. (Jordan, 1876). Abundant in Big Laurel River, Laurel County, Ky. (Jordan and Brayton, 1878, as *Hemitremia vittata*). Cumberland and Tennessee Rivers (Jordan, 1878, as *Hemitremia vittata*). Elk River at Estill Springs, Tenn. (Jordan and Gilbert in Jordan, 1878, type, and Jordan and Brayton, 1878, as *Phoxinus flammeus*). Clear Fork and Wolf Creek near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883, as *Hemitremia vittata*). Tennessee River near Huntsville (Gilbert and Swain, 1884, collectors).

47. *Opsopæodus emiliæ* Hay. (407.) Emily's minnow.

Cumberland River near Kuttawa, Mayfield Creek near Hickory Grove, and Bayou de Chien near Moscow, Ky. (Woolman, 1892).

48. *Opsopæodus bollmani* Gilbert. (409.) Bollman's minnow.

Obion River near Cypress, Ky. (Woolman, 1892).

49. *Abramis crysoleucas* (Mitchill). (410.) Golden shiner; roach.

Falls of the Ohio (Rafinesque, 1819, as *Notemigonus auratus*, type). Kentucky River (Rafinesque, 1820, as *Notemigonus auratus*). Common in still, sluggish waters of the Cumberland and Tennessee

Basins (Jordan and Brayton, 1878, as *Notemigonus chrysoleucus*). Mayfield Creek near Hickory Grove (Woolman, 1892, as *Notemigonus chrysoleucus*).

50. *Cliola vigilax* (Baird and Girard). (414.) Bull-head minnow.

Clinch River near Clinton, Stone River near Nashville, and Richland Creek near Pulaski, Tenn. (Gilbert and Swain, 1884, collectors). Rolling Fork of Salt River near Booth, lower Cumberland River near Kuttawa, Blaine Creek near Catalpa, and Little Sandy River, Ky. (Gilbert and Henshall, 1888, collectors; Woolman, 1892). Ball Creek near Tazewell, Clinch River at Walkers Ford, Tennessee River near Knoxville, Tenn., and Chickamauga Creek near Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

51. *Notropis blennius* (Girard). (423.) Straw-colored minnow.

Kentucky River (Rafinesque, 1820a, as *Minnilus microstomus*, type). Cumberland River (U. S. N. M.). Cumberland River near Nashville (Jordan and Brayton, 1878, as *Photogenis analostanus*). Tributaries of Clinch River (Jordan and Brayton, 1878, as *Alburnops microstomus*). South Fork of the Cumberland (*vide* Cope, Jordan and Brayton, 1878, as *Alburnops microstomus*). North Fork of the Holston near Saltville, Va., and Doe River near Elizabethton, Tenn. (Jordan, 1889, as *Notropis microstomus*). Rolling Fork of Salt River near Booth and New Haven, Green River near Greensburg, Trade-water River near Dawson and Rockcastle River near Livingston (Jordan and Gilbert, 1876, collectors, and Gilbert, 1884, collector). Rockcastle River near Livingston, Cumberland River near Barbourville, Straight Creek near Pineville, and Smith Creek and Albany Branch in Clinton County, Ky. (Kirsch, 1889-90, collector). Powell River near Cumberland Gap, Obion River near Cypress, Bull Creek, Middle Fork and Cutshin Creek near Hyden, North Fork of the Kentucky near Hazard, Troublesome Creek near Dwarf, Redbird Creek (South Fork of the Kentucky) near Big Creek, Beaver Creek near Lackey, Island Creek and Levisa Fork of the Big Sandy near Pikeville, John and Coon Creeks near Zebulon, Triplet Creek near Farmer, and Little Sandy River (Gilbert and Henshall, 1888, collectors; Woolman, 1892, as *Notropis deliciosus*). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Clinch River at Walkers Ford, and Roaring Fork near Greenville, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

52. *Notropis spectrunculus* (Cope). (431.)

Bear Creek, a tributary of the Middle Fork of the Holston in Smyth County, Va., also probably the adjacent tributaries of the same stream—the Hungrymother and Chilohoway Creeks (Cope, 1869, as *Hybopsis spectrunculus*, type). Holston and French Broad Rivers (Jordan and Brayton, 1878, as *Alburnops spectrunculus*). Tennessee River near Florence and Wolf Creek in Cocke County, Tenn. (Gilbert and Swain, 1884, collectors). Middle Fork of the Holston at Marion and Glade Spring, South Fork of the Holston at Holstein Mills, Va., Spring Creek near Hot Springs, North Fork of the Swannanoa at Burnett's mills, and South Fork of the Swannanoa at Black Mountain station, N. C. (Jordan, 1889). Cumberland River near Barbourville, Redbird Creek (South Fork of the Kentucky) near Big Creek (?) (Woolman, 1892).

53. *Notropis shumardi* (Girard). (441.) Shumard's minnow.

West Fork of Stone River near Murfreesboro, and Wolf River near Byrdstown, Tenn. (Kirsch, 1893, as *Notropis boops*). Indian Creek near Cumberland Gap (Gurley, 1893, collector; and Evermann and Hildebrand, 1916).

54. *Notropis whipplii* (Girard). (463.) Silver-fin; satin-fin; blue minnow.

Cumberland River near Nashville (Jordan and Brayton, 1878, as *Photogenis analostanus*). Tennessee River near Florence, Ala., and Rockcastle River, Ky. (Gilbert and Swain, 1884, collectors). Indian Creek in Clinton County, Ky. (Kirsch, 1892). Rolling Fork of Salt River near Booth (Woolman, 1892), and New Market and New Haven, Ky. (Gilbert and Swain, 1884, collectors; Woolman, 1892). Pond Creek near Rockport, Rough Creek near Hartford, Big Barren River and Drake Creek near Bowling Green, Beaver Creek near Glasgow, Little Barren River near Osceola, Green River and Pitman Creek near Greensburg, lower Cumberland River near Kuttawa, Clear Creek near Wildie, Little Rockcastle River near Livingston, and Rockcastle River at Livingston (Gilbert, 1884, collector). Near mouth of the Little Rockcastle and near Livingston, Cumberland River and Richland Creek near Barbourville, Smoky Fork of Richland Creek near its mouth, Straight Creek near Pineville, Tennessee River near Paducah, Powell River near Cumberland Gap, Bayou de Chien near Moscow, Horse and Goose Creeks near Garratsville, Hector Creek near Big Creek post office, Redbird Creek (South Fork of the Kentucky), Bull Creek,

Cutshin Creek, and Middle Fork of the Kentucky near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, Left Troublesome Creek near Hindman, Right Beaver Fork of the Big Sandy near Lackey, Shelby and Robinson Creeks near Robinson, Island Creek and Levisa Fork of the Big Sandy near Pikeville, John and Coon Creeks near Zebulon, and Blaine Creek near Catalpa, Licking River and Triplet Creek near Farmer, and Little Sandy River near its mouth (Gilbert and Henshall, 1884, collectors; Woolman, 1892). West Fork of Stone River near Murfreesboro, Spring Creek at Springcreek station, Caney Fork and Smith Fork near Lancaster, Obeys River and Eagle Creek near Olympus, Wolf River near Byrdstown, Tenn.; Willis Creek at its mouth, Beaver Creek in Wayne County, Ky., Otter Creek between Monticello and Albany, Big South Fork of the Cumberland near mouth of Rock Creek, Rock Creek west of Whitley station, and New River and Brimstone Creek near New River railway station, Ky. (Kirsch, 1893).

55. *Notropis galacturus* (Cope). (465.)

Abundant in the tributaries of the Holston in Virginia (Cope, 1867, as *Hypsilepis galacturus*, type). Streams of the Holston (Cope, 1869, as *Hypsilepis galacturus*). French Broad and Powell Rivers, Tenn. (Jordan, 1876, as *Hypsilepis galacturus*). Tennessee River (Jordan, 1878; and Jordan and Brayton, 1878). Cumberland River (Jordan, 1878, as *Luxilus galacturus*; and Jordan, 1888, as *Photogenis galacturus*). Clinch River near Clinton, Wolf River in Cocke County, Harpeth River near Franklin, and Duck River near Columbia, Tenn. (Gilbert and Swain, 1884, collectors). Spring Creek near Hot Springs, Swannanoa River near Asheville, South Fork of the Swannanoa at Black Mountain station, N. C., South Fork of the Holston near Holstein Mills, Middle Fork of the Holston near Glade Spring, North Fork of the Holston near Saltville, Va., Beaver Creek near Bristol and Watauga and Doe Rivers near Elizabethton, Tenn. (Jordan, 1889). Indian, Willis, Spring, and Smith Creeks in Clinton County, Ky. (Kirsch, 1892). Rockcastle River near Livingston (Jordan and Gilbert, 1876, collectors). Clear Creek near Wildie, Richland Creek near Barbourville, Spring Creek, Smith Creek, Albany Branch, and Indian Creek in Clinton County, Ky. (Woolman, 1892). West Fork of Stone River near Murfreesboro, Spring Creek near Springcreek station, Smith Fork near Lancaster, Roaring Fork near Windle, Obeys River and Eagle Creek near Olympus, Wolf River near Byrdstown, Tenn., Willis Creek at its mouth, Beaver Creek in Wayne County, Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near mouth of Canada Creek, Rock Creek near Whitley station, and New River near New River station, Ky. (Kirsch, 1893). Indian Creek near Cumberland Gap, Clinch River at Walkers Ford, Ball Creek near Tazewell, Tennessee River near Knoxville, Roaring Fork near Greenville, Eastaunaula Creek near Athens, and Tellico River at Tellico Plains, Tenn., and Chickamauga Creek near Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

56. *Notropis cornutus* (Mitchill). (471.) Golden shiner; red-fin dace.

Cumberland River (Rafinesque, 1820, as *Luxilus chrysocephalus*, type). Ohio, Kentucky, Cumberland, and Green Rivers, etc. (Rafinesque, 1820a, as *Luxilus chrysocephalus*, type). Streams of Kentucky (Rafinesque, 1820a, as *Rutilus plargyrus*, type). Ohio River (Rafinesque, 1820a, as *Luxilus interruptus*, type). Tennessee River at Florence (Storer, 1845, as *Leuciscus obesus*, type). Tennessee River near Huntsville (Agassiz, 1854, as *Stilbe obesus* and *Hypsolepis gibbosus*). Tennessee River (Cope, 1867, as *Hypsolepis cornutus*). Holston River, Va. (Cope, 1867 and 1869, as *Hypsolepis cornutus frontalis*). Powell and French Broad Rivers (Jordan, 1876). "Exceedingly abundant everywhere" in Kentucky and Tennessee (Jordan and Brayton, 1878, as *Luxilus cornutus*). Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883, as *Minnilus cornutus*). Chickamauga Creek near Ringgold, Ga., Elk River and tributaries near Estill Springs, Tenn., Powell River, Indian Creek, and Station Creek near Cumberland Gap, French Broad River at Newport and Big Pigeon River at Clifton, Tenn., and Swannanoa River at foot of Black Mountain, N. C. (Jordan and Brayton, 1878, as *Luxilus cornutus*). South Fork of the Holston at Holstein Mills, Middle Fork of the Holston near Glade Spring, and North Fork of the Holston near Saltville, Va., Beaver Creek near Bristol, and Watauga and Doe Rivers near Elizabethton, Tenn. (Jordan, 1889, as *Notropis megalops*). Indian, Willis, Spring, Smith, and Albany Creeks in Clinton County, Ky. (Kirsch, 1892). Rolling Fork of Salt River near Booth, New Haven, and New Market, Rough Creek near Hartford, Big Barren River and Drake Creek near Bowling Green, Beaver Creek near Glasgow, Little Barren River near Osceola, Green River and Pitman Creek near Greensburg, Trade-water River near Dawson Springs, Cumberland River near Kuttawa, Clear Creek near Wildie, Little

Rockcastle River and Rockcastle River near Livingston, Cumberland River and Richland Creek near Barbourville, Smoky Fork of Richland Creek near its mouth, Straight Creek near Pineville, Smith and Spring Creeks, Albany Branch and a pond near Albany (Kirsch, 1889-90, collector). Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View, Whitley County, Ky. (Jordan, 1883, collector). Powell River near Cumberland Gap, Mayfield Creek near Hickory Grove, Obion River near Cypress, Goose Creek near Garratsville, Hector Creek near Big Creek post office, Redbird Creek (South Fork of the Kentucky), Bull Creek, Cutskin Creek, and Middle Fork of the Kentucky near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, and Left Troublesome Creek near Hindman (Woolman, 1892). West Fork of Stone River near Murfreesboro, Spring Creek at Springcreek station, Round Lick Creek at Watertown, Smith Fork near Lancaster, Obeys River and Eagle Creek near Olympus, Wolf River near Byrdstown, Tenn., and Willis Creek at its mouth, Beaver Creek in Wayne County, Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near the mouth of Canada Creek, and Canada Creek at its mouth, Ky. (Kirsch, 1893, as *Notropis megalops*). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Clinch River at Walkers Ford, Roaring Fork and Nolichucky River near Greenville, Eastaunaula Creek near Athens, Arnwine Spring Creek near Mount Verd, and Tellico River at Tellico Plains, Tenn., and Chickamauga Creek at Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

57. *Notropis lacertosus* (Cope). (474.)

Bear Creek, a tributary of the Middle Fork of the Holston in Virginia (Cope, 1869, as *Hybopsis lacertosus*, type). Holston River (Jordan and Brayton, 1878, as *Hydrophlox lacertosus*). Tennessee River (Jordan, 1878, as *Luxilus lacertosus* and *Alburnops lacertosus*). South Fork of the Holston at Holstein Mills and North Fork of the Holston near Saltville, Va. (Jordan, 1889).

58. *Notropis coccogenis* (Cope). (476.)

"Abundant in the clear and often rapid creeks that flow into the North and Middle Forks of the Holston in Virginia" (Cope, 1867, as *Hypsilepis coccogenis*, type). Streams of the Holston (Cope, 1869, as *Hypsilepis coccogenis*). Powell River, Tenn. (Jordan, 1876, as *Luxilus coccogenis*). Chickamauga Creek at Ringgold, Ga., Elk River and tributaries near Estill Springs; Powell River, Indian Creek and Station Creek near Cumberland Gap, French Broad River at Newport, and Big Pigeon River at Clifton, Tenn., and Swannanoa River at foot of Black Mountain, N. C. (Jordan and Brayton, 1878, as *Luxilus coccogenis*). Tennessee River (Jordan, 1878, as *Luxilus coccogenis*). Tennessee River at Florence, and Wolf Creek in Cocke County, Tenn. (Gilbert and Swain, 1884, collectors). Spring Creek near Hot Springs, Swannanoa River near Asheville, North Fork of the Swannanoa at Burnett's mill, N. C., Middle Fork of the Holston near Marion and Glade Spring, South Fork of the Holston at Holstein Mills, North Fork of the Holston near Saltville, Va., Beaver Creek near Bristol, and Watauga and Doe Rivers near Elizabethton, Tenn. (Jordan 1889). Robinson Creek near Robinson, Ky. (Woolman, 1892). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Arnwine Spring Creek near Mount Verd, Tellico River at Tellico Plains, Tenn., and Chickamauga Creek at Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

59. *Notropis zonatus* (Agassiz). (477.)

Nolichucky River near Greenville, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

60. *Notropis rubricroceus* (Cope). (479.) Red fallfish.

Bear Creek, a tributary of the Middle Fork of the Holston in Smyth County, Va., also probably the adjacent tributaries of the same stream—Hungrysmother and Chilohoway Creeks, also near the mouth of Tumbling Creek, a tributary of the North Fork of the Holston (Cope, 1869, as *Hybopsis rubricroceus*, type). Tributaries of the Holston (Jordan and Brayton, 1878, as *Hydrophlox rubricroceus*). Tennessee River (Jordan, 1878, as *Hybopsis rubricroceus*). Middle Fork of the Holston at Holstein Mills, Va., and Doe River near Elizabethton, Tenn. (Jordan, 1889). South Mouse Creek near Cleveland, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

61. *Notropis ariommus* (Cope). (489.)

Tennessee River near Florence (Gilbert and Swain, 1884, collectors). Watauga River near Elizabethton, Tenn. (Jordan, 1889). Rolling Fork, of Salt River near New Market, Ky. (Gilbert and Swain, 1884, collectors). Big Barren River near Bowling Green, Little Barren River at Osceola, Green River

near Greensburg, Drake Creek near Bowling Green, Redbird Creek (South Fork of the Kentucky) near Big Creek, Middle Fork of the Kentucky near Hyden, and Levisa Fork of the Big Sandy near Pikeville (Woolman, 1892). Round Lick Creek at Watertown, Tenn., and Rock Creek near Whitley railroad station, Ky. (Kirsch, 1893).

62. *Notropis jejunus* (Forbes). (491.)

Cumberland River near Kuttawa, Obion River near Cypress, mouth of Big Sandy River and Little Sandy River (Gilbert and Henshall, 1888, collectors; Woolman, 1892).

63. *Notropis leuciodus* (Cope). (494.)

Tributaries of the Holston (Cope, 1867, as *Photogenis leuciodus*, type). North Fork of the Holston near Saltville, Va. (Cope, 1869, as *Photogenis leuciodus*). Holston and French Broad Rivers (Jordan and Brayton, 1878, as *Episema leucioda*). Tennessee River (Jordan, 1878, as *Chiola leucioda*). Swannanoa River near Asheville and French Broad River and Spring Creek near Hot Springs, N. C., Watauga and Doe Rivers near Elizabethton, Beaver Creek near Bristol, Tenn., South Fork of the Holston at Holstein Mills, Middle Fork of the Holston near Marion and Glade Spring, and North Fork of the Holston near Saltville, Va. (Jordan, 1889). Smith Creek in Clinton County, Ky. (Kirsch, 1892).

64. *Notropis telescopus* (Cope). (495.)

Abundant in all the rapid streams tributary to the Holston River in Virginia, very rare in the river itself (Cope, 1867, as *Photogenis telescopus*, type). Tributaries of the Holston (Cope, 1869, as *Photogenis telescopus*). Holston and French Broad Rivers, and Elk River near Estill Springs, Tenn. (Jordan and Brayton, 1878). Tennessee River, and Stone River near Murfreesboro (Jordan, 1878). Swannanoa River near Asheville, South Fork of the Swannanoa at Black Mountain railroad station, North Fork of the Swannanoa near Burnett's mill, and Spring Creek near Hot Springs, N. C., Watauga and Doe Rivers near Elizabethton, Tenn., South Fork of the Holston near Holstein Mills, Middle Fork of the Holston near Marion and Glade Spring, and North Fork of the Holston near Saltville, Va. (Jordan, 1889). Little Barren River near Osceola, and Indian Creek (Kirsch, 1889-90, collector; Woolman, 1892). Indian Creek in Clinton County, Ky. (Kirsch, 1892). West Fork of Stone River near Murfreesboro and Obeyes River and Eagle Creek near Olympus, Tenn., Willis Creek at its mouth, Big South Fork of the Cumberland and Rock Creek near Whitley station, and Canada Creek in Wayne County, Ky. (Kirsch, 1893). Indian Creek near Cumberland Gap, and Tellico River at Tellico Plains, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

65. *Notropis stilbius* Jordan. (498.)

Ball Creek near Tazewell, Clinch River at Walkers Ford, Nolichucky River near Greenville, and Tellico River at Tellico Plains, Tenn., and Chickamauga Creek at Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

66. *Notropis atherinoides* Rafinesque. (499.) Slender minnow.

Ohio River (Rafinesque, 1820a, as *Minulus dinemus*). Rockcastle River, Ky. (Jordan, 1876, as *Notropis dinemus*). Tributaries of Clinch River and very abundant in the Rockcastle and other upper tributaries of the Cumberland (Jordan and Brayton, 1878). Watauga and Doe Rivers near Elizabethton, Tenn., Middle Fork of the Holston near Glade Spring, and North Fork of the Holston near Saltville, Va., French Broad River and Warm Spring Creek at Hot Spring and Swannanoa River near Asheville, N. C. (Jordan, 1889). Rolling Fork of Salt River at Booth, and near New Market (Gilbert and Swain, 1884, collectors). Rough Creek at Hartford, Big Barren River and Drake Creek near Bowling Green, Little Barren River at Osceola, Green River and Pitman Creek near Greensburg, Tradewater River near Dawson Springs, Cumberland River near Kuttawa, Rockcastle River near Livingston (Gilbert, 1884, collector). Tennessee River near Paducah, Obion River near Cypress, Bayou de Chien near Moscow, upper Kentucky River, Levisa Fork of the Big Sandy near Pikeville, John Creek near Zebulon, Blaine Creek near Catalpa, and mouth of the Big Sandy (Gilbert and Henshall, 1888, collectors). Licking River and Triplet Creek near Farmer, and Little Sandy River (Gilbert and Henshall, 1888, collectors; Woolman, 1892). Spring Creek near Springcreek railroad station, Round Lick Creek near Watertown, Smith Fork near Lancaster, Obeyes River and Eagle Creek near Olympus, and Wolf River near Byrdstown, Tenn., Cumberland River at the mouth of Willis Creek in Cumberland County, Little South Fork of the Cumberland near mouth of Canada Creek, Canada Creek near its mouth, Big South Fork of the Cumberland near mouth of Rock Creek west of Whitley station, Rock Creek near Whitley station, and Brimstone Creek near New River station, Ky. (Kirsch, 1893).

67. *Notropis arge* (Cope). (500.)

Big Barren River at Bowling Green, Green River near Greensburg, Horse Creek and Redbird Creek (South Fork of the Kentucky) near Big Creek, and North Fork of the Kentucky near Hazard (Woolman, 1892).

68. *Notropis dilectus* (Girard). (501.) Emerald minnow.

Big Barren River and Drake Creek near Bowling Green, Beaver Creek near Glasgow, Little Barren River near Osceola, Green River near Greensburg, Rockcastle River near Livingston, and below the railroad bridge (Gilbert, 1884, collector). Powell River near Cumberland Gap, Redbird Creek (South Fork of the Kentucky) near Big Creek, Bull and Cutshin Creeks near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, and Left Troublesome Creek at Hindman, Right Fork of Beaver Creek at Lackey, Robinson and Shelby Creeks near Robinson, Island Creek and Levisa Fork of the Big Sandy near Pikeville, John Creek near Zebulon, Blaine Creek near Catalpa, and mouth of the Big Sandy (Gilbert and Henshall, 1888, collectors). Triplet Creek near Farmer (Woolman, 1892).

69. *Notropis photogenis* (Cope). (504.)

Abundant in the French Broad (Jordan and Brayton, 1878).

70. *Notropis micropteryx* (Cope). (507.)

Holston River (Cope, 1869, as *Alburnellus micropteryx*, type). French Broad and Rockcastle Rivers (Jordan, 1876). Tributaries of Holston and Clinch Rivers and abundant in Rockcastle River (Jordan and Brayton, 1878). Tennessee and Cumberland Rivers (Jordan, 1878). Richland Creek near Pulaski, Tenn. (Gilbert and Swain, 1884, collectors). Clinch River at Walkers Ford, and Tennessee River near Knoxville, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

71. *Notropis lirus* Jordan. (510.)

Elk River at Estill Springs, Tenn., and Chickamauga River near Ringgold, Ga. (Jordan and Brayton, 1878). Tennessee River (Jordan, 1878). Tennessee River near Florence (Gilbert and Swain, 1884, collectors).

72. *Notropis umbratilis lythrusus* (Jordan). (512b.)

Small streams which fall into the Elkhorn and Kentucky Rivers (Rafinesque, 1820a, as *Rutilus*(?) *ruber*, type). Rockcastle and Cumberland Rivers (Jordan, 1876, as *Lythrusus ardens*). Very abundant everywhere in the Cumberland (Jordan and Brayton, 1878, as *Lythrusus ardens*). Cumberland River (Jordan, 1878, as *Lythrusus ardens*). Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883, as *Minnilus diplamius*). Indian, Willis, Spring, Smith, and Albany Creeks in Clinton County, Ky. (Kirsch, 1892, as *Notropis umbratilis cyanocephalus*). Spring Creek at Springcreek station, Round Lick Creek at Watertown, Roaring River near Windle, Eagle Creek near Olympus, Wolf River near Byrdstown, Tenn., Cumberland River in Cumberland County, Willis Creek at its mouth, Otter Creek between Monticello and Albany, Canada Creek 8 miles above its mouth, Big South Fork of the Cumberland near mouth of Rock Creek west of Whitley station, and New River and Brimstone Creek near New River Station, Ky. (Kirsch, 1893). Rolling Fork of Salt River near New Market (Gilbert and Swain, 1884, collectors). Pond Creek near Rockport and Rough Creek near Hartford, Big Barren River and Drake Creek near Bowling Green, Beaver Creek near Glasgow, Little Barren River at Osceola, Green River near Greensburg, Tradewater River near Dawson Springs, Clear Creek near Wildie, Cumberland River near Barbourville, Cumberland River near Pineville, Richland Creek near Barbourville, Smoky Fork of Richland Creek near its mouth, Straight Creek near Pineville, and Rockcastle River below the railroad bridge (Gilbert, 1884, collector), and near Livingston (Jordan and Gilbert, 1876, collectors). Smith Creek, Spring Creek, Albany Branch, Indian Creek, and pond near Albany (Kirsch, 1889-90, collector). Mayfield Creek near Hickory Grove, Obion River near Cypress, Redbird Creek (South Fork of the Kentucky) near Big Creek, and Bull Creek near Hyden (Woolman, 1892). Clear Fork of the Cumberland, and Wolf and Briar Creeks near Pleasant View, in Whitley County, Ky. (Jordan, 1883, collector; Woolman, 1892).

73. *Notropis umbratilis fasciolaris* Gilbert. (512e.)

French Broad River (Jordan, 1876), as *Lythrusus ardens*). Richland Creek near Pulaski, Tenn. (Gilbert and Swain, 1884, collectors). Streams about Florence (Gilbert, 1891, type).

74. *Ericymba buccata* Cope. (513.) Cavern-jawed minnow.

Wolf and Briar Creeks near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883). Rolling Fork of Salt River near Booth, Cumberland River and Richland Creek near Barbourville, Smoky Fork of Richland Creek near its mouth, Straight Creek near Pineville, Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan, 1883, collector). Horse and Goose Creeks near Garratsville, Hector and Redbird Creeks near Big Creek, Big Creek at Big Creek post office, Bull and Cutshin Creeks and Middle Fork of the Kentucky near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, Left Troublesome Creek near Hindman, Right Fork of Beaver Creek near Lackey, Shelby and Robinson Creeks near Robinson, Island Creek and Levisa Fork of the Big Sandy near Pikeville, John and Coon Creeks near Zebulon, Blaine Creek near Catalpa, Licking River and Triplet Creek near Farmer, and Little Sandy River (Gilbert and Henshall, 1888, collectors; Woolman, 1892).

75. *Phenacobius mirabilis* (Girard). (515.)

Stone River at Nashville (Gilbert and Swain, 1884, collectors).

76. *Phenacobius uranops* Cope. (517.)

Holston River near Saltville, Va. (Cope, 1867, type, and Cope, 1869). French Broad River, Tenn., and Rockcastle River, Ky. (Jordan, 1876). Rockcastle River, Ky. (Jordan, 1877, and Jordan and Brayton, 1878). Tennessee River (Jordan, 1878). Elk, Chickamauga, French Broad, and Holston Rivers (Jordan and Brayton, 1878). Duck River at Columbia, Tenn. (Gilbert and Swain, 1884, collectors). Swannanoa River near Asheville and Spring Creek at Hot Springs, N. C., Watauga River near Elizabethton and Beaver Creek near Bristol, Tenn., Middle Fork of the Holston near Glade Spring and North Fork of the Holston near Saltville, Va. (Jordan, 1889). Big Barren River and Drake Creek near Bowling Green, Green River near Greensburg, and Rockcastle River just below the railroad bridge (Gilbert, 1884, collector) and near Livingston (Jordan and Gilbert, 1876, collectors). Rockcastle River near Livingston, Ky. (Woolman, 1892). Obeys River and Eagle Creek near Olympus and Wolf River near Byrdstown, Tenn., and Willis Creek at its mouth in Cumberland County, Ky. (Kirsch, 1893). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, and Clinch River at Walkers Ford, Tenn., and Chickamauga Creek at Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

77. *Rhinichthys cataractæ* (Cuvier and Valenciennes). (521.) Long-nosed dace.

South Fork of Holston River near Holstein Mills, Va. (Jordan, 1889).

78. *Rhinichthys atronasus* (Mitchill). (523.) Black-nosed dace.

Tennessee River near Florence, Ala. (Storer, 1845, as *Leuciscus croceus*, type). Spring Branch of Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Rhinichthys obtusus*, type, and *Leuciscus croceus*). Tennessee River (Girard, 1856, and Günther, 1868, as *Rhinichthys obtusus*). Holston River (Günther, 1868, as *Rhinichthys nasutus*). Tributaries of the Holston (Cope, 1869, as *Rhinichthys lunatus*). Abundant in all clear rocky brooks and in outlets of springs (Jordan and Brayton, 1878, as *Rhinichthys obtusus*). Branch of Clinch River (Garman, 1881, as *Rhinichthys badius*, type). Tennessee River (Garman, 1881). Tennessee River near Florence, Ala. (Gilbert and Swain, 1884, collectors). South Fork of the Swannanoa at Black Mountain station, and North Fork of the Swannanoa at Burnett's mill, N. C., South Fork of the Holston near Holstein Mills, and Middle Fork of the Holston near Marion and Glade Spring, Va. (Jordan, 1889, as *Rhinichthys obtusus*). Spring Creek, Albany Branch, and Indian Creek in Clinton County, Ky. (Kirsch, 1889-90, collector). Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan, 1883, collector; Woolman, 1892). Roaring Fork near Windle, Tenn., and Cumberland River near mouth of Willis Creek in Cumberland County, Ky. (Kirsch, 1893). Indian Creek and Solomon's Cave at Cumberland Gap, Ball Creek, and Nigger Cave near Tazewell, Roaring Fork near Greenville, Eastaunaula Creek and Norvel Spring branch near Athens, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

79. *Hybopsis hyostoma* (Gilbert). (536.)

Clinch River at Clinton and Stone River at Nashville, Tenn. (Gilbert and Swain, 1884, collectors). Big Barren River near Bowling Green, Little Barren River at Osceola, Green River near Greensburg, Blaine Creek near Catalpa, and Licking River and Triplet Creek near Farmer (Woolman, 1892). Clinch River at Walkers Ford and Tennessee River near Knoxville, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

80. *Hybopsis monacus* (Cope). (541.)

Holston River in Washington County, Va. (Cope, 1869, as *Ceraticthys monacus*, type). Holston River, and abundant in Chickamauga River near Ringgold, Ga. (Jordan and Brayton, 1878, as *Ceraticthys monachus*). Tennessee River (Jordan, 1878, as *Ceraticthys monachus*). Shoal Creek near Florence, Ala. (Gilbert and Swain, 1884, collectors). Swannanoa River near Asheville and Spring Creek near Hot Springs, N. C., and North Fork of Holston River near Saltville, Va. (Jordan, 1889, as *Hybopsis monachus*).

81. *Hybopsis dissimilis* (Kirtland). (542.) Spotted shiner.

Elk River near Estill Springs, Tenn., and Cumberland River at Nashville (Jordan and Brayton, 1878, as *Ceraticthys dissimilis*). Tennessee River near Florence, Ala. (Gilbert and Swain, 1884, collectors). Swannanoa River near Asheville and Spring Creek near Hot Springs, N. C. (Jordan, 1889). Rolling Fork of Salt River near Booth (Woolman, 1892). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Tennessee River near Knoxville, and Tellico River at Tellico Plains, Tenn., and Chickamauga Creek near Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

82. *Hybopsis watauga* Jordan and Evermann. (543.) Watauga shiner.

Watauga River near Elizabethton, Tenn., and North Fork of the Holston near Saltville, Va. (Jordan, 1888, type, and Jordan, 1889). Big Barren River and Drake Creek near Bowling Green, Little Barren River near Osceola, Green River near Greensburg, Powell River near Cumberland Gap, Redbird Creek near Big Creek post office (Woolman, 1892). Caney Fork River and Smith Fork of Caney River near Lancaster, and Obeyes River near Olympus, Tenn. (Kirsch, 1893).

83. *Hybopsis amblops* (Rafinesque). (547.) Big-eyed shiner; silver chub.

Ohio River at the Falls (Rafinesque, 1820a, as *Rutilus Amblops*, type). Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Hybopsis gracilis*, type). Tributaries of the Holston (Cope, 1869, as *Ceraticthys hyalinus*, type). Powell River, Tenn. (Jordan, 1876, as *Ceraticthys gracilis*). Everywhere abundant in the Tennessee (Jordan and Brayton, 1878, as *Ceraticthys winchelli*). Cumberland River at Nashville (Jordan and Brayton, 1878, as *Ceraticthys amblops*). Tennessee River near Florence, Ala., and Wolf Creek in Cocke County, Tenn. (Gilbert and Swain, 1884, collectors). Swannanoa River near Asheville, Spring Creek near Hot Springs, N. C., Watauga and Doe Rivers near Elizabethton, Beaver Creek near Bristol, Tenn., South Fork of the Holston at Holstein Mills, Middle Fork of the Holston near Marion and Glade Spring, and North Fork of the Holston near Saltville, Va. (Jordan, 1889). Rolling Fork of Salt River near Booth, Pond Creek near Rockport, Rough Creek near Hartford, Green River and Pitman Creek near Greensburg, Tradewater River near Dawson Springs, Cumberland River near Barbourville, and Indian Creek in Clinton County, Ky. (Kirsch, 1889-90, collector). Powell River near Cumberland Gap, Mayfield Creek near Hickory Grove, Goose Creek near Garratsville, Hector Creek near Big Creek post office, Redbird Creek near Big Creek, Middle Fork of the Kentucky and Cutshin Creek near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, Left Troublesome Creek near Hindman, Right Fork of Beaver Creek at Lackey, Robinson Creek near Robinson, Island Creek near Pikeville, John Creek near Zebulon, and Triplet Creek near Farmer (Woolman, 1892). West Fork of Stone River near Murfreesboro, Spring Creek at Springcreek station, Smith Fork near Lancaster, Eagle Creek near Olympus, Wolf Creek near Byrdstown, Tenn., Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near mouth of Canada Creek, Canada Creek near its mouth, and Rock Creek near Whitley station, Ky. (Kirsch, 1893). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Clinch River at Walkers Ford, Tennessee River near Knoxville, Roaring Fork near Greenville, Tellico River at Tellico Plains, Eastaunaula Creek near Athens, Tenn., and Chickamauga Creek at Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hilderbrand, 1916).

84. *Hybopsis storerianus* (Kirtland). (548.) Storer's chub.

Falls of the Ohio (Jordan, 1879, as *Ceraticthys lucens*, type). Stone River near Nashville, and Rolling Fork (Gilbert and Swain, 1884, collectors). Rolling Fork of Salt River at New Haven and near Booth (Gilbert and Swain, 1884, collectors). Rough Creek near Hartford, Cumberland River near Kuttawa, Bayou de Chien, near Moscow, Tennessee River near Paducah, and Little Sandy River (Gilbert and Henshall, 1888, collectors; Woolman, 1892).

85. *Hybopsis kentuckiensis* (Rafinesque). (550.) River chub.

Ohio River (Rafinesque, 1820a, as *Luxilus Kentuckiensis*, type). Holston River (Cope, 1869, as *Ceraticichthys biguttatus*). Powell River, Tenn. (Jordan, 1876, as *Ceraticichthys biguttatus*). Everywhere abundant in the Cumberland and Tennessee Basins (Jordan and Brayton, 1878, as *Ceraticichthys biguttatus*). North Fork of the Holston near Saltville, Middle Fork of the Holston near Marion and Glade Spring, South Fork of the Holston near Holstein Mills, Va., Beaver Creek near Bristol and Watauga and Doe Rivers near Elizabethton, Tenn., Spring Creek and French Broad River near Hot Springs, Swannanoa River near Asheville, and South Fork of the Swannanoa near Black Mountain station, N. C. (Jordan, 1889). Pond Creek near Rockport, Rough Creek near Hartford, Barren River and Drake Creek near Bowling Green, Little Barren River near Osceola, Green River near Greensburg, and Rockcastle River just below the railroad bridge (Gilbert, 1884, collector). Clear Creek near Wildie, Rockcastle River near Livingston, Cumberland River near Barbourville, and Smith, Spring, and Albany Creeks and pond near Albany, in Clinton County, Ky. (Kirsch, 1889-90, collector). Powell River near Cumberland Gap, Horse Creek near Garratsville, Hector and Redbird Creeks near Big Creek post office, Bull Creek, Middle Fork of the Kentucky, and Cutshin Creek near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, Right Fork of Beaver Creek at Lackey, Robinson Creek at Robinson, Island Creek and Levisa Fork of the Big Sandy near Pikeville, John and Coon Creeks near Zebulon, Licking River and Triplet Creek near Farmer, Clear Creek near Wildie, Rockcastle River near Livingston, and Cumberland River near Barbourville, Ky. (Woolman, 1892). Spring, Smith, and Albany Creeks in Clinton County, Ky. (Kirsch, 1892). West Fork of Stone River near Murfreesboro, Spring Creek at Springcreek station, Roaring River near Windle, Eagle Creek near Olympt, Wolf River near Byrdstown, Tenn., Beaver Creek in Wayne County, Little South Fork of the Cumberland near mouth of Canada Creek, Big South Fork of the Cumberland near mouth of Rock Creek west of Whitley station, and New River and Brimstone Creek near New River station, Ky. (Kirsch, 1893). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Clinch River at Walkers Ford, Tennessee River near Knoxville, Tellico River at Tellico Plains, Eastaunaula Creek near Athens, Arnwine Spring Creek near Mount Verd, Tenn., and Chickamauga Creek at Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley 1893, collectors; and Evermann and Hildebrand, 1916).

86. *Anguilla chrisypa* Rafinesque. (588.) Common eel.

Cumberland, Green, and Licking Rivers (Rafinesque, 1820, as *Anguilla lutea*, type). Tennessee and Cumberland Rivers (Rafinesque, 1820, as *Anguilla aterrima*, type, and Jordan and Brayton, 1878, as *Anguilla vulgaris*). Rockcastle River at mouth of Round Stone River, and common in the Cumberland (Jordan and Brayton, 1878, as *Anguilla vulgaris*). Wolf River and Ill-will Creek in Clinton County, Ky. (Kirsch, 1892). Tradewater River near Dawson Springs, and Rockcastle River just below the railroad bridge (Gilbert, 1884, collector). Bayou de Chien near Moscow (Woolman, 1892). Falls of the Ohio (Evermann, 1902).

87. *Hiodon alosoides* (Rafinesque). (689.) Toothed herring; moon-eye.

Lower parts of the Ohio and at the Falls (Rafinesque, 1820a, as *Hiodon amphiodon*, type). Rolling Fork of Salt River near Booth and Cumberland River near Kuttawa, Ky. (Woolman, 1892). Falls of the Ohio (Evermann, 1902).

88. *Hiodon tergisus* Le Sueur. (690.) Toothed herring; moon-eye.

Falls of the Ohio (Rafinesque, 1818, as *Glossodon heterurus*, type). Ohio River and tributary streams (Rafinesque, 1820a, as *Hiodon heterurus*). All over the Ohio and even at Pittsburgh (Rafinesque, 1820a, as *Hiodon vernalis*). As far as Pittsburgh in May (Rafinesque, 1820a, as *Hiodon clodulus* [misprint for *tergisus*, see p. 98]). Abundant in the Cumberland (Jordan and Brayton, 1878, as *Hiodon tergisus*).

89. *Hiodon selenops* Jordan and Bean. (691.) Southern toothed herring; moon-eye.

Cumberland River (Jordan, 1877a, Jordan, 1878, and Jordan and Brayton, 1878, as *Hiodon selenops*). Rolling Fork of Salt River near Booth, and Pitman Creek near Greensburg, Ky. (Woolman, 1892).

90. *Dorosoma cepedianum* (Le Sueur). (693.) Hickory shad.

Falls of the Ohio (Rafinesque, 1820a, as *Dorosoma notata*, type). Abundant in the lower Cumberland and Tennessee Rivers (Jordan and Brayton, 1878, as *Dorosoma cepedianum heterurum*). Rolling Fork of Salt River near Booth, Pond Creek near Rockport, Cumberland River near Kuttawa, Tennessee River near Paducah, Obion River near Cypress, Bayou de Chien near Moscow, near mouth of the

Big Sandy, and Little Sandy River, Ky. (Gilbert and Henshall, 1888, collectors; Woolman, 1892). Falls of the Ohio (Evermann, 1902).

91. *Pomolobus chrysochloris* Rafinesque. (705.) Skipjack

Falls of the Ohio (Rafinesque, 1820a, type). Abundant in the lower Cumberland and in the channel of the lower Tennessee (Jordan and Brayton, 1878). Clinch River at Clinton and Stone River at Nashville, Tenn. (Gilbert and Swain, 1884, collectors). Willis Creek, Clinton County, Ky. (Kirsch, 1892, as *Clupea chrysochloris*). Little Sandy River near its mouth (Gilbert and Henshall, 1888, collectors; and Woolman, 1892, as *Clupea chrysochloris*). Obeyes River at Olympus, Tenn., and Willis Creek near its mouth in Cumberland County, Ky. (Kirsch, 1893, as *Clupea chrysochloris*).

92. *Alosa ohiensis* Evermann. (709+.) Ohio shad.

Ohio River at the Falls (Evermann collector, May, 1898; Evermann, 1902, type).

93. *Salvelinus fontinalis* (Mitchill). (801.) Eastern brook trout.

Headwaters of Holston River (Cope, 1869, as *Salmo fontinalis*). Abundant in the Swannanoa at the foot of Black Mountain and in all clear tributaries of the French Broad in western North Carolina, in certain tributaries of the Holston in southwestern Virginia, and in Rabun County, Ga., it abounds in the headwaters of the Little Tennessee (Jordan and Brayton, 1878). North Fork of Swannanoa River at Burnett's mill near foot of Black Mountain, N. C. (Jordan 1889).

94. *Lucius vermiculatus* (Le Sueur). (941.) Little pickerel.

Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Esox crassus*, type, and Gilbert and Swain, 1884, collectors). Mayfield Creek near Hickory Grove, Obion River near Cypress, Bayou de Chien near Moscow, and Triplet Creek near Farmer, Ky. (Woolman, 1892).

95. *Lucius lucius* (Linnæus). (943.) Common pike.

Ohio River (Rafinesque, 1818a, as *Esox vittatus*). Crab Orchard, Ky. (Le Sueur in Cuvier and Valenciennes, 1838, as *Esox lugubrosus*, collector Le Sueur).

96. *Fundulus catenatus* (Storer). (963.)

Tennessee River near Florence, Ala. (Storer, 1845, as *Pæcilia catenata*, type). Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Hydrargyra catenata*). Abundant in some tributaries of the Holston (Cope, 1869). Powell and Clinch Rivers, Tenn. (Jordan, 1876). Cumberland River (Jordan, 1878, as *Xenisma catenatum*). Florence, Ala., and abundant in the Elk, Clinch, and Holston Rivers in clear water, and in streams about Nashville, Tenn. (Jordan and Brayton, 1878, as *Xenisma catenatum*). Tennessee River near Florence, Ala. (Gilbert and Swain, 1884, collectors). North Fork of the Holston near Saltville, Va. (Jordan, 1889). Indian and Willis Creeks in Clinton County, Ky. (Kirsch, 1892). Green River near Greensburg, Cumberland River near Kuttawa, Straight Creek near Pineville, and Powell River near Cumberland Gap, Ky. (Woolman, 1892). Spring Creek at Springcreek station, Round Lick Creek near Watertown, Obeyes River and Eagle Creek near Olympus, and Wolf River near Byrdstown, Tenn., Willis Creek at its mouth in Cumberland County, Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near mouth of Canada Creek, and Canada Creek near its mouth, Ky. (Kirsch, 1893). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Clinch River at Walkers Ford, and Tellico River at Tellico Plains, Tenn. (Evermann, Scovell, and Gurley 1893, collectors; and Evermann and Hildebrand, 1916).

97. *Fundulus notatus* (Rafinesque). (986.) Top minnow.

Tributaries of the Ohio in Kentucky, Cumberland River at Williamsburg, and Little River, a tributary of it (Rafinesque, 1820, as *Semotilus* (?) *notatus*, type). Tennessee River near Florence, Ala. (Storer, 1845, as *Pæcilia olivacea*, type). Russellville, Ky. [probably from a tributary of Green River] (Baird and Girard, 1853, as *Fundulus tenellus*, type). Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Zygonectes olivaceus*). Cumberland and Stone Rivers, and Florence, Ala. (Jordan and Brayton, 1878, as *Zygonectes notatus*). Tennessee River near Florence (Gilbert and Swain, 1884, collectors). Rolling Fork of Salt River near Booth, Drake Creek near Bowling Green, Cumberland River near Kuttawa, Mayfield Creek near Hickory Grove, Obion River near Cypress, Tradewater River near Dawson Springs, Bayou de Chien near Moscow, Ky. (Woolman, 1892, as *Zygonectes notatus*). West Fork of Stone River near Murfreesboro and Spring Creek at Springcreek station, Tenn. (Kirsch, 1893, as *Zygonectes notatus*). Norvell Spring near Athens, Tenn. (Evermann, Scovell, and Gurley 1893, collectors; and Evermann and Hildebrand, 1916).

98. *Gambusia affinis* (Baird and Girard). (1021.) Top minnow; *Gambusia*.
Huntingdon, Carroll County, Tenn. (Bean, 1885, U. S. N. M.). Cumberland River near Kuttawa, and Obion River near Cypress, Ky. (Woolman, 1892).
99. *Typhlichthys subterraneus* Girard. (1065.) Blindfish.
Well at Bowling Green, Ky., tributary to Green River (Girard, 1859, type; J. E. Younglove; collector). Lebanon, Wilson County, Tenn. (Putnam, 1872; J. M. Safford, collector). Moulton, Lawrence County, Ala. (Putnam, 1872; Thomas Peters, collector). Tennessee and Alabama (Jordan, 1882). Winehouse Cave near Shellmound, Tenn. (Evermann and Hildebrand, 1916).
100. *Chologaster agassizii* Putnam. (1066.)
Well in Lebanon, Wilson County, Tenn. [probably tributary to Cumberland River] (Putnam, 1872, type). Subterranean streams in Kentucky and Tennessee (Jordan, 1878).
101. *Amblyopsis spelæus* De Kay. (1069.) Mammoth Cave blindfish.
Mammoth Cave and subterranean streams of Kentucky (De Kay, 1842, type, and Jordan, 1878). Mammoth Cave, Ky., about $2\frac{1}{2}$ miles from the entrance (Craig, 1842, "as a small eyeless fish").
102. *Aphredoderus sayanus* (Gilliams). (1171.) Pirate perch.
Creek near Florence, Ala. (Gilbert and Swain, 1884, collectors). Pond Creek near Rockport, Mayfield Creek near Hickory Grove, Obion River near Cypress, and Bayou de Chien near Moscow, Ky. (Woolman, 1892).
103. *Labidesthes sicculus* Cope. (1202.) Brook silverside; skipjack.
Cumberland River, Ky. (Jordan, 1876 and 1882). Coal Creek, a tributary of the Clinch River (Cope, 1877, and Jordan and Brayton, 1878). Abundant in Stone River near Murfreesboro, Tenn. (Jordan and Brayton, 1878). Tusculumbia and Florence, Ala. (Gilbert and Swain, 1884, collectors). Rough Creek near Hartford and Pond Creek near Rockport, Big Barren River and Drake Creek near Bowling Green, Little Barren River near Osceola, Green River near Greensburg, Tradewater River near Dawson Springs, Cumberland River near Kuttawa, Tennessee River near Paducah, Powell River near Cumberland Gap, Mayfield Creek near Hickory Grove, Obion River near Cypress, Bayou de Chien near Moscow, Horse and Goose Creeks near Garratsville, Redbird and Big Creeks near Big Creek station, Robinson Creek near Robinson, Levisa Fork of the Big Sandy near Pikeville, Triplet Creek near Farmer, and Little Sandy River, Ky. (Gilbert and Henshall, 1888, collectors; Woolman, 1892). West Fork of Stone River near Murfreesboro, Spring Creek near Springcreek station, and Obeys River near Olympus, Tenn. (Kirsch, 1893).
104. *Pomoxis annularis* Rafinesque. (1409.) Crappie; newlight; campbellite.
Falls of the Ohio (Rafinesque, 1818b, type, and 1818c, and 1820a). Tennessee River near Huntsville, Ala. (Agassiz, 1854). Houston River, Ky. (Girard, 1857, as *Pomoxis nitidus*, type). Rockcastle River, Ky. (Jordan, 1876). Cumberland River at Nashville, Tenn. (Jordan and Brayton, 1878). Big Barren River near Bowling Green, Green River near Greensburg, Tradewater River near Dawson, Obion River near Cypress, Bayou de Chien near Moscow, and Little Sandy River near its mouth (Gilbert and Henshall, 1888, collectors). Mayfield Creek near Hickory Grove, Ky. (Woolman, 1892).
105. *Pomoxis sparoides* (Lacépède). (1410.) Calico bass; strawberry bass.
Cumberland River at Nashville (Jordan and Brayton, as *Pomoxys nigromaculatus*; collector, Prof. A. Winchell). Obion River near Cypress, and Bayou de Chien near Moscow, Ky. (Woolman, 1892).
106. *Centrarchus macropterus* (Lacépède). (1411.) Round sunfish; flier.
Mayfield Creek near Hickory Grove, Ky. (Woolman, 1892); doubtful record.
107. *Ambloplites rupestris* (Rafinesque). (1413.) Rock bass; goggle-eye; red-eye.
Tennessee, Green, and Cumberland Rivers, and Little River (a tributary of the Cumberland) (Rafinesque, 1820, as *Aplocentrus calliops*, type). Kentucky River and tributary streams (Rafinesque, 1820, as *Lepomis ictheloides*). Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Ambloplites ictheloides*). Common in the Holston (Cope, 1869). Cumberland, Rockcastle, Powell, and French Broad Rivers (Jordan, 1876). Cumberland River (Cope, 1877). Cumberland and Tennessee Basins, everywhere abundant (Jordan and Brayton, 1878). Clear Fork, Wolf Creek, and Briar Creek near Pleasant View in Whitley County, Ky. (Jordan and Swain, 1883). Swannanoa River near Asheville, Spring Creek near Hot Springs, N. C., Watauga River near Elizabethton, Beaver Creek near Bristol, Tenn., South Fork of Holston at Holstein Mills, and Middle Fork of Holston near Marion and

Glade Spring, Va. (Jordan, 1889). Indian, Smith, Spring, and Albany Creeks in Clinton County, Ky. (Kirsch, 1892). Little Barren River near Osceola, Green River and Pitman Creek near Greensburg, Cumberland River near Barbourville and Pineville, Smith, Spring, Albany Branch, and Indian Creeks in Clinton County, Ky., Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky., Powell River near Cumberland Gap, Tenn., Goose Creek near Garratsville, Redbird Creek (South Fork of the Kentucky) and Big Creek near Big Creek post office, Lot Creek near Hazard, and Middle Fork of the Kentucky near Hyden, Blaine Creek near Catalpa, and Little Sandy River near its mouth (Gilbert and Henshall, 1888, collectors; Woolman, 1892). Smith Fork near Lancaster, Roaring Fork near Windle, Spring Creek at Springcreek station, Obeyes River near Olympus, and Wolf River near Byrdstown, Tenn., Little South Fork of the Cumberland near mouth of Canada Creek and Brimstone Creek near New River station, Ky. (Kirsch, 1893). Clinch River at Walkers Ford, Roaring Fork near Greenville, Tellico River at Tellico Plains, and Eastaunaula Creek near Athens, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

108. *Chaenobryttus gulosus* (Cuvier and Valenciennes). (1415.) Warmouth.

Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Calliurus punctulatus*, type). Lower Tennessee River (Jordan and Brayton, 1878). Cypress Creek near Florence, Ala. (Gilbert and Swain, 1884, collectors). Pond Creek near Rockport, Mayfield Creek near Hickory Grove, Obion River near Cypress, and Bayou de Chien near Moscow, Ky. (Woolman, 1892).

109. *Apomotis cyanellus* (Rafinesque). (1419.) Blue-spotted sunfish; green sunfish.

Ohio River (Rafinesque, 1819, as *Lepomis cyanellus*, type). Tributary streams of the Ohio, Kentucky, and Licking Rivers (Rafinesque, 1820a, as *Ichthelis melanops*). Falls of the Ohio (Rafinesque, 1820a, as *Ichthelis cyanella*). Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Pomotis sanguinolentus*, *P. inscriptus*, and *P. bombifrons*, types). Holston River, Va. (Cope, 1869, as *Lepomis inscriptus*). Tennessee River (Jordan, 1877a, as *Xenotis sanguinolentus*, *Lepomis bombifrons*, and *Xenotis inscriptus*). Abundant in the Cumberland at Nashville (Jordan and Brayton, 1878). Huntsville, Ala. (Jordan and Brayton, 1878, as *Lepiopomus bombifrons*). Tennessee River (Jordan, 1878, as *Lepiopomus bombifrons*). Clear Fork and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan and Swain, 1883). Cumberland River (Bean, 1883, U. S. N. M.). Tennessee River near Florence, Tuscumbia, and Richland Creek at Pulaski, Tenn. (Gilbert and Swain, 1884, collectors). Huntingdon, Carroll County, Tenn. (Bean, 1885, U. S. N. M.). North Fork of the Holston near Saltville, Va. (Jordan, 1889). Indian, Willis, Spring, and Smith Creeks in Clinton County, Ky. (Kirsch, 1892, as *Lepomis cyanellus*). Pond Creek near Rockport, small artificial lake (of Cumberland River) near Kuttawa, Smoky Fork of Richland Creek near its mouth, Mayfield Creek near Hickory Grove, Blaine Creek near Catalpa, Triplet Creek near Farmer, Clear Fork of the Cumberland River and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan, 1883, collector; Woolman, 1892, as *Lepomis cyanellus*). Beaver Creek in Wayne County, Ky. (Kirsch, 1893, as *Lepomis cyanellus*). Ball Creek near Tazewell, Clinch River at Walkers Ford, Tellico River at Tellico Plains, Arnwine Spring near Mount Verd, Tenn., and Chickamauga Creek at Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

110. *Lepomis auritus* (Linnæus). (1424.) Redbreasted bream.

Rivers, creeks, and ponds of Kentucky (Rafinesque, 1820a, as *Ichthelis aurita*).

111. *Lepomis garmani* Forbes. (1426.) Garman's sunfish.

Cumberland River near Barbourville, and Bayou de Chien near Moscow, Ky. (Woolman, 1892).

112. *Lepomis megalotis* (Rafinesque). (1427.) Long-eared sunfish.

Kentucky, Licking, and Sandy Rivers (Rafinesque, 1820a, as *Ichthelis megalotis*, type). Abundant in the Cumberland (Jordan and Brayton, 1878, as *Xenotis megalotis*). Clear Fork and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan and Swain, 1883). Tennessee River near Florence (Gilbert and Swain, 1884, collectors). Middle Fork of the Holston at Glade Spring, Va. (Jordan, 1889). Indian Creek in Clinton County, Ky. (Kirsch, 1892). Rolling Fork of Salt River near New Haven and New Market, and near Booth (Gilbert and Swain, 1884, collectors). Rough Creek near Hartford, Big Barren River and Drake Creek near Bowling Green, Beaver Creek near Glasgow, Little Barren River near Osceola, Green River and Pitman Creek near Greensburg, Tradewater River near Dawson, Cumberland River and a small artificial lake near Kuttawa, Rockcastle River below

the railroad bridge and near Livingston (Gilbert and Swain, 1884, collectors), Clear Fork near Wildie, Rockcastle River near Livingston, Smoky Fork of Richland Creek near its mouth, Cumberland River near Barbourville and near Pineville, and Indian Creek in Clinton County, Ky. (Kirsch, 1889-90, collector). Powell River near Cumberland Gap, Mayfield Creek near Hickory Grove, Obion River near Cypress, Bayou de Chien near Moscow, Horse and Goose Creeks near Garratsville, Hector, Redbird (South Fork of the Kentucky), and Big Creeks near Big Creek post office, Bull and Cutshin Creeks and Middle Fork of the Kentucky near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, Left Troublesome Creek near Hindman, Right Fork of Beaver Creek near Lackey, Shelby and Robinson Creeks near Robinson, Island Creek and Levisa Fork of the Big Sandy near Pikeville, John and Coon Creeks near Zebulon, Blaine Creek near Catalpa, Triplet Creek near Farmer, and Little Sandy River near its mouth (Gilbert and Henshall, 1888, collectors). Generally distributed in the upper Green River Basin, Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan, 1883, collector; Woolman, 1892). West Fork of Stone River near Murfreesboro, Spring Creek at Springcreek station Round Lick Creek near Watertown, Smith Fork near Lancaster, Obeyes River and Eagle Creek near Olympus, Wolf River near Byrdstown, Tenn., Beaver Creek in Wayne County, Ky.; Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near mouth of Canada Creek, Canada Creek near its mouth, Big South Fork of the Cumberland near mouth of Rock Creek west of Whitley Station, and Brimstone Creek near New River station, Ky. (Kirsch, 1893).

113. *Lepomis macrochirus* Rafinesque. (1430.) Big-finned sunfish.

Ohio, Licking, and Green Rivers (Rafinesque, 1819, as *Lepomis macrochira*, type, and 1820a, as *Icthelis macrochira*). Clear Fork and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan and Swain, 1883). Clear Fork of the Cumberland River and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan, 1883, collector). Tradewater River near Dawson, and Obion River near Cypress, Ky. (Woolman, 1892).

114. *Lepomis pallidus* (Mitchill). (1431.) Bluegill.

Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Pomotis incisor*, and *Pomotis obscurus*, type). Tennessee Basin (Jordan, 1876 and 1878, and Jordan and Brayton, 1878, as *Lepiopotomus pallidus* and *L. obscurus*). Abundant in the Cumberland (Jordan and Brayton, 1878, as *Lepiopotomus pallidus*). Cumberland River at Nashville (Jordan, 1876 and 1878, and Jordan and Brayton, 1878, as *Lepiopotomus obscurus*; collector, Prof. A. Winchell). Tennessee River near Florence, Ala. (Gilbert and Swain, 1884, collectors). Middle Fork of the Holston near Glade Spring, Va. (Jordan, 1889). Pond Creek near Rockport, Green River near Greensburg, Tradewater River near Dawson, Cumberland River and small artificial lake near Kuttawa, Rockcastle River below the railroad bridge (Gilbert and Swain, 1884, collectors). Bayou de Chien near Moscow, Island Creek near Pikeville, Triplet Creek near Farmer, and Little Sandy River near its mouth, Ky. (Gilbert and Henshall, 1888, collectors; Woolman, 1892). West Fork of Stone River near Murfreesboro, and Spring Creek at Springcreek station, Tenn. (Kirsch, 1893). Arnwine Spring Creek near Mount Verd, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

115. *Eupomotis pallidus* (Agassiz). (1432.) Sunfish.

Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Pomotis pallidus*, type). Huntsville, Ala. (Jordan and Brayton, 1878).

116. *Eupomotis heros* (Baird and Girard). (1433.) Sunfish.

Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Pomotis notatus*, type). Tennessee River (Jordan, 1876, as *Lepomis notatus*). Tennessee River (Jordan, 1877a, as *Xystroplites notatus*). Huntsville, Ala., and upper waters of the Tennessee (Jordan and Brayton, 1878, as *Xystroplites notatus*). Bayou de Chien near Moscow, Ky. (Woolman, 1892).

117. *Micropterus dolomieu* Lacépède. (1437.) Smallmouth black bass.

Falls of the Ohio (Rafinesque, 1820a, as *Calliurus punctulatus*, type). Kentucky, Green, Licking, and Ohio Rivers (Rafinesque, 1820a as *Lepomis salmonea*). Ohio and Salt Rivers, etc. (Rafinesque, 1820a, as *Etheostoma calliura*, type). Ohio River and many other streams (Rafinesque, 1820a, as *Lepomis trifasciata*, type). Ohio and tributaries (Rafinesque 1820a, as *Lepomis flexuolaris*, type). Ohio, Kentucky, Green, and Licking Rivers, etc. (Rafinesque, 1820a, as *Lepomis salmonea* and *Lepomis notata*). Abundant in Holston River (Cope, 1869, as *Micropterus fasciatus*). Cumberland River (Cope, 1877, as

Micropterus fasciatus). Clear Fork and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan and Swain, 1883, as *Micropterus dolomiei*). Middle Fork of the Holston near Glade Spring, North Fork of the Holston near Saltville, Va., Beaver Creek near Bristol, Watauga River near Elizabethton, French Broad River and Spring Creek near Hot Springs, N. C., and Swannanoa River near Asheville, N. C. (Jordan, 1889). Rolling Fork of Salt River near New Haven (Gilbert and Swain, 1884, collectors), Rough Creek near Hartford, Big Barren River and Drake Creek near Bowling Green, Beaver Creek near Glasgow, Little Barren River near Osceola, Green River and Pitman Creek near Greensburg, Tradewater River near Dawson, Cumberland River and artificial lake near Kuttawa, Clear Creek near Wildie, Little Rockcastle River and Rockcastle River near Livingston, Cumberland River and Richland Creek near Barbourville, Smoky Fork of Richland Creek near its mouth, Cumberland River near Pineville, and Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View in Whitley County (Jordan, 1883, collector). Tennessee River near Paducah, Powell River near Cumberland Gap, Obion River near Cypress, Bayou de Chien near Moscow, Horse and Goose Creeks near Garratsville, Hector, Redbird (South Fork of the Kentucky), and Big Creek near Big Creek post office, Bull and Cutshin Creeks and Middle Fork of the Kentucky near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, Left Troublesome Creek near Hindman, Right Fork of Beaver Creek near Lackey, Shelby and Robinson Creeks near Robinson, Island Creek and Levisa Fork of the Big Sandy near Pikeville, John and Coon Creeks near Zebulon, Blaine Creek near Catalpa, Triplet Creek near Farmer, and Little Sandy River near its mouth, Ky. (Gilbert and Henshall, 1888, collectors; Woolman, 1892). West Fork of Stone River near Murfreesboro, Smith Fork near Lancaster, Roaring River near Windle, Obeyes River and Eagle Creek near Olympus, Wolf River near Byrds-town, Tenn., Cumberland River near mouth of Willis Creek in Cumberland County, Ky., Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near mouth of Canada Creek, Big South Fork of the Cumberland near mouth of Rock Creek west of Whitley station, Canada Creek near its mouth, Brimstone Creek near New River station, Ky., and Spring Creek at Springcreek station, Tenn. (Kirsch, 1893). Indian Creek near Cumberland Gap, Bull Creek near Tazewell, Clinch River at Walkers Ford, and Tellico River at Tellico Plains, Tenn., and Chickamauga Creek at Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

118. *Micropterus salmoides* (Lacépède). (1438.) Largemouth black bass; straw bass.

Ohio River (Rafinesque, 1820a, as *Lepomis pallida*, type). Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Grystes nobilis*, type). Rockcastle River, Ky. (Jordan, 1876, as *Micropterus pallidus*). Tennessee River and Cumberland River below the falls and introduced above the falls (Jordan and Brayton, 1878, as *Micropterus pallidus* and *Micropterus salmoides*). Rough Creek near Hartford, Green River Basin, Tradewater River near Dawson, Cumberland River near Kuttawa, Cumberland River near Barbourville, Obion River near Cypress, Bayou de Chien near Moscow, Goose Creek near Garratsville, Redbird (South Fork of the Kentucky) and Big Creek near Big Creek post office, Middle Fork of the Kentucky near Hyden, Beaver Creek near Lackey, Island Creek near Pikeville, John and Coon Creeks near Zebulon, Blaine Creek near Catalpa, Triplet Creek near Farmer, and Little Sandy River near its mouth, Ky. (Gilbert and Henshall, 1888, collectors; Woolman, 1892). Cumberland River and Willis Creek near its mouth in Cumberland County, Ky. (Kirsch, 1893). Clinch River at Walkers Ford, Tenn., and Chickamauga Creek at Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

119. *Stizostedion vitreum* (Mitchill). (1441.) Wall-eyed pike; "salmon;" "white salmon."

Ohio River (Rafinesque 1818, as *Perca salmonea*, type). Ohio, Kentucky, and Licking Rivers (Rafinesque, 1820a, as *Perca salmonea*). Tennessee River (Jordan, 1876, as *Stizostedion salmoneum*). Rockcastle River at Livingston, Ky. (Jordan, 1876, and Jordan and Brayton, 1878, as *Stizostethium salmoneum*). French Broad River (Cope, 1877a, as *Stizostedium americanum*). French Broad River and throughout the Tennessee Basin (Jordan and Brayton, 1878, as *Stizostethium vitreum* and *S. salmoneum*). Tennessee River near Paducah, Levisa Fork of the Big Sandy near Pikeville, and Cumberland River near Kuttawa, Green River and Pitman Creek near Greensburg, and Little Sandy River near its mouth, Ky. (Gilbert and Henshall, 1888, collectors; Woolman, 1892). Smith Fork near Lancaster, Tenn. (Kirsch, 1893). Tellico River at Tellico Plains, and French Broad River near Newport, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

120. *Stizostedion canadense* (Smith). (1442.) Sauger.

Indian Creek in Clinton County, Ky. (Kirsch, 1892). Clinton County, Ky. (Kirsch, 1889-90, collector; and Woolman, 1892). Big Sandy River and Little Sandy River near its mouth (Gilbert and Henshall, 1888, collectors; and Woolman, 1892). Big Sycamore Creek near Tazewell, Tenn. (Gurley, 1893, collector; Evermann and Hildebrand, 1916).

121. *Percina caprodes* (Rafinesque). (1445.) Log perch.

Ohio River (Rafinesque, 1818, as *Sciæna caprodes*, type). Ohio, Cumberland, Tennessee, Kentucky, Green, and Licking Rivers (Rafinesque, 1820, as *Etheostoma caprodes*). Holston River (Cope, 1869). South Fork of Cumberland River in Campbell County, Tenn. (Cope, 1870). Cumberland and Rockcastle Rivers (Jordan, 1876). Abundant in the Cumberland Basin (Jordan and Brayton, 1878). Tennessee River near Florence, Ala., Clinch River at Clinton, Stone River near Nashville, Tenn., and Rockcastle River near Livingston, Ky. (Gilbert and Swain, 1884, collectors). Swannanoa River near Asheville, N. C., Watauga River near Elizabethton, Tenn., and North Fork of the Holston near Saltville, Va. (Jordan, 1889, as *Etheostoma caprodes*). Willis Creek in Clinton County, Ky. (Kirsch, 1892, as *Etheostoma caprodes*). Rolling Fork of Salt River near New Haven and near Booth (Gilbert and Swain, 1884, collectors), Rough Creek near Hartford, Big Barren River and Drake Creek near Bowling Green, Little Barren River near Osceola, Green River near Greensburg, Cumberland River near Kuttawa, and Rockcastle River just below the railroad bridge (Gilbert and Swain, 1884, collectors). Rockcastle River near Livingston (Jordan and Gilbert, 1876, collectors). Rockcastle River near Livingston, Clear Creek near Wildie, Cumberland River and Straight Creek near Pineville, Powell River near Cumberland Gap, Tennessee River near Paducah, Obion River near Cypress, and Bayou de Chien near Moscow, Ky. (Woolman, 1892, as *Etheostoma caprodes*). West Fork of Stone River near Murfreesboro, Spring Creek at Springcreek station, Smith Fork near Lancaster, Obeys River and Eagle Creek near Olympus, Wolf River near Byrdstown, Tenn., Willis Creek at its mouth in Cumberland County, Ky., Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near mouth of Canada Creek, Big South Fork of the Cumberland near the mouth of Rock Creek, and New River and Brimstone Creek near New River station, Ky. (Kirsch, 1893, as *Etheostoma caprodes*). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, and Tennessee River near Knoxville, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; Evermann and Hildebrand, 1916).

122. *Hadropterus phoxocephalus* (Nelson). (1446.) Nelson's darter.

Tennessee River (Jordan, 1878f, as *Etheostoma phoxocephalum*). Cumberland River at Nashville (Jordan and Brayton, 1878, as *Alwordius phoxocephalus*). Stone River near Nashville and Harpeth River near Franklin, Tenn., and Rockcastle River near Livingston, Ky. Rolling Fork of Salt River near New Haven and near Booth, Pond Creek near Rockport, Rough Creek near Hartford, Drake Creek near Bowling Green, Green River and Pitman Creek near Greensburg, Tradewater River near Dawson, Cumberland River near Kuttawa, and Rockcastle River just below the railroad bridge (Gilbert and Swain, 1884, collectors; and Woolman, 1892). Mayfield Creek near Hickory Grove, and Levisa Fork of the Big Sandy near Pikeville, Ky. (Woolman, 1892, as *Etheostoma phoxocephalum*).

123. *Hadropterus macrocephalus* (Cope). (1447.)

North Fork of the Holston near Saltville, and Middle Fork of the Holston near Glade Spring, Va. (Jordan, 1889, as *Etheostoma macrocephalum*). Big Barren River and Drake Creek near Bowling Green, Little Barren River near Osceola, Beaver Creek near Glasgow, Green River near Greensburg, and Levisa Fork of the Big Sandy near Pikeville, Ky. (Woolman, 1892, as *Etheostoma macrocephalum*). Obeys River and Eagle Creek near Olympus, Tenn., and Little South Fork of the Cumberland near mouth of Canada Creek, Ky. (Kirsch, 1893, as *Etheostoma macrocephalum*). Indian Creek near Cumberland Gap (Gurley, 1893, collector; Evermann and Hildebrand, 1916).

124. *Hadropterus maculatus* (Girard). (1448.)

Rockcastle and Cumberland Rivers at various places (Jordan, 1876, and Jordan and Brayton, 1878, as *Alwordius maculatus*). French Broad River (Jordan, 1876, as *Alwordius maculatus*). Chickamauga River near Ringgold, Ga., and Clinch and French Broad Rivers (Jordan and Brayton, 1878, as *Alwordius maculatus*).

125. *Hadropterus aspro* (Cope and Jordan). (1449.) Black-sided darter.

Rockcastle River near Livingston, Ky. (Gilbert and Swain, 1884 collectors). Clear Fork of the Cumberland near Pleasant View in Whitley County, Ky. (Jordan and Swain, 1883, as *Alvordius aspro*). Smith Fork near Lancaster, Tenn., Cumberland River near mouth of Willis Creek in Cumberland County, Ky., Big South Fork of the Cumberland near mouth of Rock Creek west of Whitley Station, Ky., and Brimstone Creek near New River station, Ky. (Kirsch, 1893, as *Etheostoma aspro*). Rough Creek near Hartford, Big Barren River near Bowling Green and Green River near Greensburg, Trade-water River near Dawson, Cumberland River near Kuttawa, Rockcastle River just below the railroad bridge (Gilbert and Swain, 1884, collectors) and near Livingston (Jordan and Gilbert, 1876, collectors). Clear Creek near Wildie, Rockcastle River near Livingston, Cumberland River near Barbourville, and Straight Creek near Pineville, Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan, 1883, collector). Powell River near Cumberland Gap, Mayfield Creek near Hickory Grove, Obion River near Cypress, Bayou de Chien near Moscow, Goose Creek near Garratsville, Big Creek near Big Creek post office, Middle Fork of the Kentucky near Hyden, Troublesome Creek near Dwarf, and Levisa Fork of the Big Sandy near Pikeville, Ky. (Woolman, 1892, as *Etheostoma aspro*). Ball Creek near Tazewell, Tenn. (Gurley, 1893, collector; Evermann and Hildebrand, 1916).

126. *Hadropterus ouachitæ* (Jordan and Gilbert). (1452.) Ouachita darter.

Rough Creek near Hartford, and Obion River near Cypress, Ky. (identification doubtful) (Woolman, 1892, as *Etheostoma ouachitæ*).

127. *Hadropterus evides* (Jordan and Copeland). (1454.)

Duck River at Columbia, Tenn. (Gilbert and Swain, 1884, collectors). Swannanoa River near Asheville, and Spring Creek and French Broad River near Hot Springs, N. C. (Jordan, 1889, as *Etheostoma evides*). Big Barren River near Bowling Green and Green River and Pitman Creek near Greensburg, Ky. (Woolman, 1892, as *Etheostoma evides*). Caney Fork River and Smith Fork near Lancaster, and Obeyes River near Olympus, Tenn. (Kirsch, 1893, as *Etheostoma evides*). Clinch River at Walkers Ford and Tellico River at Tellico Plains, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; Evermann and Hildebrand, 1916).

128. *Hadropterus scierus* Swain. (1455.) Swain's darter.

Bull Creek near Hershells, Tenn. (Gilbert and Swain, 1884, collectors). Little Sandy River near its mouth (Gilbert and Henshall, 1888, collectors; Woolman, 1892). Big Barren River near Bowling Green, Ky. (Woolman, 1892, as *Etheostoma scierum*). Clinch River at Walkers Ford, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; Evermann and Hildebrand, 1916).

129. *Hypohomus squamatus* Gilbert and Swain. (1457.)

Tennessee Basin (Jordan, 1885c). French Broad River at mouth of Wolf Creek, Tenn. (Gilbert, 1887, as *Etheostoma (Hadropterus) squamatus*, type). Spring Creek near Hot Springs, N. C., and Watauga River near Elizabethton, Tenn. (Jordan, 1889, as *Etheostoma squamatum*).

130. *Hypohomus aurantiacus* (Cope). (1458.)

North Fork of Holston River near Saltville, Va. (Cope, 1869, as *Cottogaster aurantiacus*, type). French Broad River in Madison County, N. C. (Cope, 1870, as *Cottogaster aurantiacus*, and Cope, 1877). French Broad River (Jordan and Brayton, 1878, as *Hadropterus aurantiacus*). French Broad River near Asheville, N. C. (Bean 1885, U. S. N. M.). Watauga River near Elizabethton, Tenn., and North Fork of Holston River near Saltville, Va. (Jordan, 1889). Clinch River at Walkers Ford, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors, and Evermann and Hildebrand, 1916).

131. *Hypohomus cymatotænia* (Gilbert and Meek). (1459.)

Big Barren River and Drake Creek near Bowling Green, Beaver Creek near Glasgow, Little Barren River near Osceola, and Green River near Greensburg, Ky. (Woolman, 1892, as *Etheostoma cymatotænia*).

132. *Hypohomus spilotus* (Gilbert). (1461.)

Sturgeon Creek, a tributary of Kentucky River, near Travelers Rest, Owsley County, Ky. (Gilbert, 1887, as *Etheostoma nianguæ spilotum*, type). Hector Creek, Redbird Creek (South Fork of the Kentucky) and Big Creek, near Big Creek post office, Middle Fork of the Kentucky and Cutshin Creek near Hyden, Lot Creek near Hazard, Troublesome Creek near Dwarf, and Left Troublesome Creek near Hindman, Ky. (Woolman, 1892, as *Etheostoma spilotum*).

133. *Cottogaster copelandi* (Jordan). (1463.) Copeland's darter.
Rough Creek near Hartford, and Green River near Greensburg, Ky. (Woolman, 1892, as *Etheostoma copelandi*). Obeys River near Olympus, Tenn. (Kirsch, 1893, as *Etheostoma copelandi*). Tennessee River near Knoxville, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; Evermann and Hildebrand, 1916).
134. *Cottogaster shumardi* (Girard). (1464.) Shumard's darter.
Rough Creek near Hartford, Cumberland River near Kuttawa, and Obion River near Cypress, Ky. (Woolman, 1892, as *Etheostoma shumardi*).
135. *Ulocentra meadiæ* Jordan and Evermann. (1464+.) Meadie's darter.
Indian Creek, a tributary of Powell River, near Cumberland Gap, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; Jordan and Evermann, 1896, type; and Evermann and Hildebrand, 1916).
136. *Ulocentra stigmæa* (Jordan). (1465.)
Stone River near Nashville, Bull Run near Hershells, and Clinch River near Clinton, Tenn. (Gilbert and Swain, 1884, collectors). Clinch River near Clinton, Tenn. (Gilbert, 1887, as *Etheostoma (Etheostoma) saxatile*). Big Barren River and Drake Creek near Bowling Green, Little Barren River near Osceola, Green River near Greensburg, and Straight Creek near Pineville, Ky. (Woolman, 1892, as *Etheostoma stigmæum*). Smith Fork near Lancaster, Tenn., Willis Creek near its mouth in Cumberland County, Ky., Little South Fork of the Cumberland near mouth of Canada Creek, Canada Creek near its mouth, Big South Fork of the Cumberland near mouth of Rock Creek west of Whitley station, and Brimstone Creek near New River station, Ky. (Kirsch, 1893, as *Etheostoma stigmæum*). Ball Creek near Tazewell, and Arnwine Spring Creek near Mount Verd, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).
137. *Ulocentra gilberti* Evermann and Thoburn. (1466.) Gilbert's darter.
Clinch River at Walkers Ford, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; Evermann and Thoburn, 1896, in Jordan and Evermann, type; and Evermann and Hildebrand, 1916).
138. *Ulocentra verecunda* (Jordan and Evermann). (1467.)
Middle Fork of the Holston 5 miles south of Glade Spring, Va. (Jordan, 1888, type; and Jordan, 1889).
139. *Ulocentra histrio* (Jordan and Gilbert). (1468.)
Rough Creek near Hartford, Ky. (Woolman, 1892, as *Etheostoma histrio*).
140. *Ulocentra simotera* (Cope). (1469.)
Holston River and its tributaries (Cope, 1869, as *Hyostoma simoterum*, type). Tributaries of Clinch River, Tenn. (Cope, 1870, as *Hyostoma simoterum*). Holston River (Vaillant 1873, as *Hiostoma simoterum*). French Broad River, Tenn. (Jordan, 1876). Rockcastle River, Ky. (Jordan, 1876 and 1877, as *Etheostoma simoterum*). Tributary of the Cumberland River near Nashville, Tenn. (Winchell, collector, and Jordan, 1877a, as *Ariana atripinnis*, type). Cumberland River (Jordan, 1877a, as *Diplesion simoterum*). Upper Tennessee River (Jordan, 1877a, as *Diplesion simoterum*). Clinch and Holston Rivers (Jordan and Brayton, 1878, as *Diplesium simoterum*). Tennessee River (Jordan, 1878, as *Diplesium simoterum*). Rockcastle River near Livingston, Ky. (Jordan and Brayton, 1878, as *Diplesium simoterum*). Cumberland River near Nashville (Jordan and Brayton, 1878, as *Ulocentra atripinnis*). Cumberland River (Jordan, 1878, as *Diplesium simoterum* and *Ulocentra atripinnis*). Stone River near Nashville and Rockcastle River near Livingston, Ky. (Gilbert and Swain, 1884, collectors). Middle Fork of the Holston near Marion, South Fork of the Holston near Holstein Mills, Va., and Beaver Creek near Bristol, Tenn. (Jordan, 1889, as *Etheostoma simoterum*). Cypress Creek near Florence, Ala., Richland Creek near Pulaski, Duck River near Columbia, Harpeth River near Franklin, Hines Creek near Clinton, Tenn., and Tennessee River near Huntsville, Ala. (Gilbert and Swain, 1884, collectors). Tributary of the Tennessee near Whiteside, Tenn. (Henshall, 1889, as *Etheostoma duryi*, type). Rare in the Green River Basin, Rockcastle River just below the railroad bridge (Gilbert and Swain, 1884, collectors) and near Livingston (Jordan and Gilbert, 1876, collectors) and Redbird Creek (South Fork of the Kentucky) near Big Creek post office, Bull Creek and Middle Fork of the Kentucky near Hyden, and Troublesome Creek near Dwarf, Ky. (Woolman, 1892, as *Etheostoma simoterum*). West Fork of Stone River near Murfreesboro, Spring Creek near Springcreek station, Round Lick Creek near Watertown, Smith Fork near Lancaster, Eagle Creek near Olympus, and Canada Creek near its mouth (Kirsch, 1893, as *Etheostoma simoterum atripinnis*). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Roaring Fork near Greenville, Eastaunaula Creek near Athens, Arnwine Spring near Mount Verd, and

Tellico River at Tellico Plains, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

141. *Diplesion blennioides* Rafinesque. (1471.) Green-sided darter.

Ohio River (Rafinesque, 1820a, as *Etheostoma Blennioides*), Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Hyostoma newmanii*, type). Tributaries of the Holston near Saltville, Va. (Cope, 1869, as *Hyostoma blennioperca*, type). French Broad River, N. C. (Cope, 1870 and 1877, as *Hyostoma cymatogrammum*). Cumberland River in Campbell County, Tenn. (Cope, 1870). Headwaters of the Cumberland River in Tennessee (Cope, 1870, as *Hyostoma cymatogrammum*). Tennessee River (Jordan, 1876 and 1877a, as *Diplesion newmani*). Holston, French Broad, Tennessee near Huntsville, and Chickamauga Rivers (Jordan and Brayton, 1878). South Fork of Cumberland River, also Cumberland and Stone Rivers (Jordan and Brayton, 1878). Clear Fork of the Cumberland near Pleasant View in Whitley County, Ky. (Jordan and Swain, 1883). Duck River near Columbia, French Broad River near Big Creek, Stone River near Nashville, and Clinch River near Clinton, Tenn. (Gilbert and Swain, 1884, collectors). North Fork of the Holston near Saltville, and Middle Fork of the Holston near Glade Spring, Va., and Doe River near Elizabethton, Tenn. (Jordan, 1889, as *Etheostoma blennioides*). Indian, Spring, and Smith Creeks in Clinton County, Ky. (Kirsch, 1892, as *Etheostoma blennioides*). Rolling Fork of Salt River near New Haven and New Market, and near Booth (Gilbert and Swain, 1884, collectors). Big Barren River and Drake Creek near Bowling Green, Little Barren River near Osceola, and Rockcastle River just below the railroad bridge (Gilbert and Swain, 1884, collectors), and near Livingston (Jordan and Gilbert, 1876, collectors). Smith, Spring, and Indian Creeks in Clinton County, Ky. (Kirsch, 1889-90, collector). Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan, 1883, collector). Horse and Goose Creeks near Garratsville, Redbird Creek (South Fork of the Kentucky) and Big Creek near Big Creek post office, Middle Fork of the Kentucky near Hyden, Troublesome Creek near Dwarf, Right Fork of Beaver Creek near Lackey, Shelby and Robinson Creeks near Robinson, Island Creek near Pikeville, John Creek near Zebulon, and Cynthiana, Ky. (Henshall, collector, Woolman, 1892, as *Etheostoma blennioides*). West Fork of Stone River near Murfreesboro, Spring Creek near Springcreek station, Smith Fork near Lancaster, Roaring River near Windle, Obeys River and Eagle Creek near Olympus, Wolf River near Byrdstown, Tenn., Beaver Creek in Wayne County, Ky., Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near mouth of Canada Creek, Canada Creek near its mouth, Rock Creek near Whitley station, and New River near New River station, Ky. (Kirsch, 1893). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Clinch River at Walkers Ford, and Tennessee River near Knoxville, Tenn., and Chickamauga Creek near Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

142. *Boleosoma nigrum* (Rafinesque). (1474.) Johnny darter; "black minny"; "blind simon."

Green River, Ky. (Rafinesque, 1820a, as *Etheostoma nigra*, type). Holston River (Cope, 1869, as *Boleosoma olmstedii*, and Jordan and Brayton, 1878, as *Boleosoma maculatum*). Rockcastle River near Livingston, Ky. (Jordan, 1876, and Jordan and Brayton, 1878, as *Boleosoma maculatum*). Pond Creek near Rockport and Rough Creek near Hartford, Big Barren River, and Drake Creek near Bowling Green, and Green River near Greensburg, Tradewater River near Dawson, Tennessee River near Paducah, Mayfield Creek near Hickory Grove, Bayou de Chien near Moscow, Horse Creek near Garratsville, Hector, Redbird Creek (South Fork of the Kentucky), and Big Creek near Big Creek post office, Middle Fork of the Kentucky and Bull and Cutshin Creeks near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, Left Troublesome Creek near Hindman, Shelby and Robinson Creeks near Robinson, Licking River and Triplet Creek near Farmer, Ky., and Little Sandy River near its mouth (Gilbert and Henshall, 1888, collectors; Woolman, 1892, as *Etheostoma nigrum*).

143. *Boleosoma susanæ* Jordan and Swain. (1475.) Susan's darter.

Clear Fork of the Cumberland, and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan and Swain, 1883, type; and Woolman, 1892, as *Etheostoma susanæ*). Cumberland River (Jordan, 1885).

144. *Crystallaria asprella* (Jordan). (1477.) Crystal darter.

Green River near Greensburg, Ky. (Woolman, 1892, as *Etheostoma asprellum*).

145. *Ammocrypta pellucida* (Baird). (1478.) Sand darter.

Rolling Fork of Salt River near New Haven and near Booth (Gilbert and Swain, 1884, collectors). Rough Creek near Hartford, Green River near Greensburg, Little Barren River near Osceola, Cumberland River near Kuttawa, Straight Creek near Pineville, Powell River near Cumberland Gap, Redbird Creek (South Fork of the Kentucky) and elsewhere in sandy streams of the Kentucky River Basin, Levisa Fork of the Big Sandy River near Pikeville, Blaine Creek near Catalpa, and Little Sandy River near its mouth (Gilbert and Henshall, 1888, collectors; Woolman, 1892, as *Etheostoma pellucidum*).

146. *Etheostoma variatum* Kirtland. (1482.)

South Fork of Cumberland River (Cope, collector; Jordan and Brayton, 1878, as *Pacilichthys variatus*). Redbird Creek (South Fork of the Kentucky) and Cutshin Creeks near Big Creek post office, Middle Fork of the Kentucky near Hyden, Troublesome Creek near Dwarf, Left Troublesome Creek near Hindman, Falls of the Ohio, and Triplet Creek near Farmer, Ky. (Woolman, 1892). Indian Creek near Cumberland Gap (Gurley, 1893, collector; and Evermann and Hildebrand, 1916).

147. *Etheostoma swannanoa* Jordan and Evermann. (1483.) Swannanoa darter.

South Fork of the Swannanoa River near Black Mountain station, N. C. (type), Middle Fork of the Holston near Marion, and South Fork of the Holston near Holstein Mills, Va. (Jordan, 1888 and 1889).

148. *Etheostoma blennioides* Gilbert and Swain. (1486.)

Cox and Shoal Creeks near Florence, Ala. (Gilbert and Swain in Gilbert, 1887, as *Etheostoma (Rhotaca) blennioides*, type).

149. *Etheostoma rupestre* Gilbert and Swain. (1487.)

Tennessee River (Jordan, 1885).

150. *Etheostoma zonale* (Cope). (1489.)

Holston River, Va. (Cope, 1869, as *Pacilichthys zonalis*, type). French Broad River in Madison County, N. C. (Cope, 1870 and 1877, as *Pacilichthys zonalis*). Holston and French Broad Rivers (Jordan and Brayton, 1878, as *Nothonotus zonalis*). Cypress Creek near Florence, Ala., Wolf Creek in Cocke County, Tenn., and Rockcastle River near Livingston, Ky. (Gilbert and Swain, 1884, collectors). Cypress Creek near Florence, Ala., and Rolling Fork and Rockcastle Rivers, Ky. (Gilbert, 1887). North Fork of the Holston near Saltville, Middle Fork of the Holston near Glade Spring, Va., Beaver Creek near Bristol, Tenn., Spring Creek and French Broad River near Hot Springs, and Swannanoa River near Asheville, N. C. (Jordan, 1889). Rolling Fork of Salt River near New Haven and New Market and near Booth (Gilbert and Swain, 1884, collectors). Big Barren River near Bowling Green, Little Barren River near Osceola, Beaver Creek near Glasgow, Green River near Greensburg, and Rockcastle River just below the railroad bridge (Gilbert and Swain, 1884, collectors) and Rockcastle River near Livingston (Jordan and Gilbert, 1876, collectors). Horse and Goose Creeks near Garratsville, Redbird Creek (South Fork of the Kentucky) and Big Creeks near Big Creek post office, Middle Fork of the Kentucky and Bull and Cutshin Creeks near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Right Fork of Beaver Creek near Lackey, Shelby and Robinson Creeks near Robinson, Levisa Fork of the Big Sandy near Pikeville, John and Coon Creeks near Zebulon, Licking River and Triplet Creek near Farmer, Ky., Little Sandy River near its mouth (Gilbert and Henshall, 1888, collectors; Woolman, 1892, as *Etheostoma zonale*). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Eastaunaula Creek near Athens, Tellico River at Tellico Plains, Tenn., and Chickamauga Creek near Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

151. *Etheostoma camurus* (Cope). (1490.) Blue-breasted darter.

Headwaters of the Cumberland in Tennessee (Cope, 1870, as *Pacilichthys camurus*, type). South Fork of the Cumberland (Cope, collector; Jordan and Brayton, 1878, and Jordan, 1882, as *Nothonotus camurus*). Rockcastle River near Livingston, Ky., and Duck River near Columbia, Tenn. (Gilbert and Swain, 1884, collectors). Spring Creek at Hot Springs, N. C. (Jordan, 1889). Green River near Greensburg, Rockcastle River just below the railroad bridge (Gilbert and Swain, 1884, collectors), and near Livingston (Jordan and Gilbert, 1876, collectors). Ball Creek near Tazewell, Clinch River at Walkers Ford, Indian Creek near Cumberland Gap, Tennessee River near Knoxville, and Tellico River at Tellico Plains, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

152. *Etheostoma vulneratum* (Cope). (1491.)

Warm Spring Creek in Madison County, N. C. (Cope, 1870, as *Pacilichthys vulneratus*, type; and Cope, 1877). French Broad River at Warm Springs, N. C. (Jordan and Brayton, 1878, and Jordan, 1878, as *Nothonotus vulneratus*).

153. *Etheostoma maculatum* Kirtland. (1492.)

Headwaters of the South Fork of the Cumberland (Cope, 1870, as *Pacilichthys sanguifluus*, type). Cumberland River (Cope, collector; Jordan, 1877, as *Nothonotus sanguifluus*, and Jordan and Brayton, 1878). Holston, River, Va. (Jordan and Brayton, 1878, as *Boleosoma maculatum*). Clinch River near Clinton, Tenn., Rockcastle and Stone Rivers and Shoal Creek near Florence, Ala. Rockcastle River just below the railroad bridge (Gilbert and Swain, 1884, collectors); and near Livingston (Jordan and Gilbert, 1876, collectors). Cynthia, Ky. (Henshall, collector; Woolman, 1892). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Clinch River at Walkers Ford, Tennessee River near Knoxville, and Tellico River at Tellico Plains, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

154. *Etheostoma cinereum* Storer. (1493.)

Tennessee River near Florence, Ala. (Storer, 1845, type). Florence, Ala. (Jordan, 1877a, as *Etheostoma cinerea*, and Jordan and Brayton, 1878, as *Etheostoma cinerea*). Obeys River and Eagle Creek near Olympus, Wolf River near Byrdstown, Tenn., and Little South Fork of the Cumberland near mouth of Canada Creek, and Canada Creek near its mouth (Kirsch, 1893).

155. *Etheostoma tessellatum* Storer. (1494.) Tessellated darter.

Tennessee River near Florence, Ala. (Storer, 1845, type). Florence, Ala. (Jordan, 1877a, as *Etheostoma tessellata*). Tennessee River near Florence (Jordan and Brayton, 1878, as *Etheostoma tessellata*).

156. *Etheostoma rufilineatum* (Cope). (1495.)

Warm Springs Creek in Madison County, N. C. (Cope, 1870, and 1877, as *Pacilichthys rufilineatus*, type). French Broad River (Jordan, 1878, and Jordan and Brayton, 1878, as *Nothonotus rufilineatus*). Shoal Creek near Florence, Ala., and Clinch River near Clinton, Tenn. (Gilbert and Swain, 1884, collectors). North Fork of the Holston near Saltville, Middle Fork of the Holston near Marion and Glade Spring, South Fork of the Holston near Holstein Mills, Va., Spring Creek near Hot Springs, and Swannanoa River near Asheville, N. C. (Jordan, 1889). Big Barren River near Bowling Green, Clinton County, Ky. (Kirsch, 1889-90, collector, identification uncertain; Woolman, 1892, as *Etheostoma rufilineatum*). Indian Creek in Clinton County, Ky. (Kirsch, 1892). West Fork of Stone River near Murfreesboro, Spring Creek near Springcreek station, Caney Fork River near Lancaster, Eagle Creek near Olympus, Tenn., Little South Fork of the Cumberland near mouth of Canada Creek, Big South Fork of the Cumberland near mouth of Rock Creek west of Whitley station, and Rock Creek near Whitley station, Ky. (Kirsch, 1893). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Clinch River at Walkers Ford, and Tennessee River near Knoxville, Tenn. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916).

157. *Etheostoma sagitta* (Jordan and Swain). (1497.)

Wolf Creek near Pleasant View, Whitley County, Ky. (Jordan and Swain, 1883, as *Pacilichthys sagitta*, type). Cumberland River (Jordan, 1885, and Woolman, 1892).

158. *Etheostoma jessiae* (Jordan and Brayton). (1502.) Jessie's darter.

Chickamauga River near Ringgold, Ga. (Jordan and Brayton, 1878, as *Pacilichthys jessiae*, type, and Jordan, 1878).

159. *Etheostoma luteovinctum* Gilbert and Swain. (1503.)

Stone River near Nashville, Tenn. (Gilbert, 1887, type).

160. *Etheostoma caeruleum* Storer. (1505.) Rainbow darter.

South Fork of the Cumberland in Tennessee (Cope, 1870, as *Pacilichthys caeruleus*). Cypress Creek near Florence, Ala. (Gilbert and Swain, 1884, collectors). Tributary of Tennessee River near Whiteside, Tenn. (Henshall, 1889, as *Etheostoma formosa*, type). Tyree Spring, Tenn. (Mr. Owen, collector, U. S. N. M.). Indian, Willis, Smith, Spring, and Albany Creeks in Clinton County, Ky. (Kirsch, 1892). Rolling Fork of Salt River near New Haven and New Market and near Booth (Gilbert and Swain, 1884, collectors). Pond Creek near Rockport, Big Barren River near Bowling Green, Beaver Creek near Glasgow, Little Barren River near Osceola, Green River near Greensburg, and Rockcastle

River just below the railroad bridge (Gilbert and Swain, 1884, collectors). Near Livingston (Jordan and Gilbert, 1876, collectors). Hector, Redbird Creek (South Fork of the Kentucky), and Big Creek near Big Creek post office, Middle Fork of the Kentucky and Bull and Cutshin Creeks near Hyden, North Fork of the Kentucky and Lot Creek near Hazard, Troublesome Creek near Dwarf, Left Troublesome Creek near Hindman, Right Fork of Beaver Creek near Lackey, Shelby and Robinson Creeks near Robinson, Levisa Fork of the Big Sandy near Pikeville, John and Coon Creeks near Zebulon, Cynthiana (Henshall, collector); and Triplet Creek near Farmer, Ky. (Woolman, 1892). Roaring River near Windle, Obeys River and Eagle Creek near Olympus, Wolf River near Byrdstown, Tenn., Willis Creek near its mouth in Cumberland County, Ky., Albany Branch and Indian Creek in Clinton County, Ky. (Kirsch, 1889-90, collector). Otter Creek between Monticello and Albany, Little South Fork of the Cumberland near mouth of Canada Creek, Canada Creek near its mouth, Big South Fork of the Cumberland near mouth of Rock Creek west of Whitley station, and Brimstone Creek near New River station, Ky. (Woolman, 1892).

161. *Etheostoma obeyense* Kirsch. (1510.) Kirsch's darter.

Indian, Spring, Smith, and Albany Creeks in Clinton County, Ky. (Kirsch, 1892, type; Woolman, 1892, as *Etheostoma* sp. nov.). Obeys River near Olympus, Tenn., Beaver Creek in Wayne County, Ky., Otter Creek between Monticello and Albany, Ky., Little South Fork of the Cumberland near mouth of Canada Creek, and Canada Creek near its mouth, Ky. (Kirsch, 1893).

162. *Etheostoma virgatum* (Jordan). (1512.)

Rockcastle River near Livingston, Ky. (Jordan, 1879, as *Pæciliichthys virgatus*). Cumberland River, Ky. (Jordan, 1882, as *Pæciliichthys virgatus*). Green River Basin, Rockcastle River just below the railroad bridge (Gilbert and Swain, 1884, collectors). Near Livingston (Jordan and Gilbert, 1876, collectors; Woolman, 1892).

163. *Etheostoma squamiciceps* Jordan. (1517.)

Russellville, Ky., probably from a tributary of Green River (Jordan, 1877a, type; collector Dr. Bebb). Tusculumbia, Ala., Cypress Creek near Florence, Ala., Harpeth River near Franklin, Stone River near Nashville, and Duck River near Columbia, Tenn. (Gilbert and Swain, 1884, collectors). West Fork of Stone River near Murfreesboro, Spring Creek near Springcreek station, and Round Lick Creek near Watertown, Tenn. (Kirsch, 1893).

164. *Etheostoma flabellare* Rafinesque. (1518.) Fan-tailed darter.

Tributaries of the Ohio (Rafinesque, 1819, type). Springs and caves near Lexington, Ky. (Rafinesque, 1820, as *Etheostoma fontinalis*, type). Falls of the Ohio (Rafinesque, 1820a, as *Etheostoma flabellata*, type). Holston River (Cope, 1869, as *Pæciliichthys flabellatus*). Cumberland and Rockcastle Rivers, Ky. (Jordan, 1876). Abundant in mountain tributaries of the Cumberland and in the upper waters of the Tennessee in clear rapid streams (Jordan and Brayton, 1878). Bull Run near Hershells, Tenn., Cypress Creek near Florence, Ala., and Big Creek and Clinch River in Clinton County, Tenn. (Gilbert and Swain, 1884, collectors). Middle Fork of the Holston near Marion, South Fork of the Holston near Holstein Mills, Va., North Fork of the Swannanoa River near Burnett's mill, South Fork of the Swannanoa River near Black Mountain station, and Swannanoa River near Asheville, N. C. (Jordan, 1889). Green River near Greensburg, Smith and Indian Creeks and Albany Branch in Clinton County, Ky. (Kirsch, 1889-90, collector). Right Fork of Beaver Creek near Lackey, Island Creek and Levisa Fork of the Big Sandy near Pikeville, Coon Creek near Zebulon, Blaine Creek near Catalpa. Cynthiana (Henshall, collector); and Licking River and Triplet Creek near Farmer, Ky. (Woolman, 1892). Indian Creek near Cumberland Gap and Ball Creek near Tazewell, Tenn. (Gurley, 1893, collector; and Evermann and Hildebrand, 1916).

165. *Etheostoma flabellare cumberlandicum* (Jordan and Swain). (1518a.) Cumberland fan-tailed darter.

Clear Fork, and Wolf, Briar, Yellow, and Gap Creeks, and other small streams of the Cumberland Mountains in Whitley County, Ky. (Jordan and Swain, 1883, type). Cumberland River (Jordan, 1885). Indian, Smith, and Albany Creeks in Clinton County, Ky. (Kirsch, 1892, as *Etheostoma flabellare*). Clear Fork of the Cumberland and Wolf and Briar Creeks near Pleasant View in Whitley County, Ky. (Jordan, 1883, collector; Woolman, 1892, as *Etheostoma cumberlandicum*).

166. *Psychromaster tuscumbia* (Gilbert and Swain). (1520.) Tuscumbia darter.

Exceedingly abundant in the stream flowing from the large spring at Tuscumbia, Ala. (Gilbert and Swain, 1887, as *Etheostoma (Etheostoma) tuscumbia*, type). Tuscumbia Spring (Evermann, Jan. 8, 1901, collector).

167. *Boleichthys fusiforme* (Girard). (1522.)

Tradewater River near Dawson, Mayfield Creek near Hickory Grove, and Bayou de Chien near Moscow, Ky. (Woolman, 1892.)

168. *Microperca punctulata* Putnam. (1525.) Least darter.

Little Barren River near Osceola, Ky. (Woolman, 1892, as *Etheostoma microperca*).

169. *Roccus chrysops* (Rafinesque). (1557.) White bass.

Ohio River chiefly in the lower parts (Rafinesque 1820a, as *Perca chrysops*). Tennessee River near Paducah, and Cumberland River near Kuttawa, Ky. (Woolman, 1892.)

170. *Aplodinotus grunniens* Rafinesque. (1900.) Fresh-water drum; lake sheepshead; "white perch" or "yellow perch."

Ohio River (Rafinesque, 1819, type). Tennessee and Cumberland Rivers (Rafinesque, 1820, as *Ambiodon grunniens*). Ohio, Tennessee, Cumberland, and Kentucky Rivers (Rafinesque, 1820a, as *Ambiodon grunniens*). Tennessee River near Huntsville, Ala. (Agassiz, 1854, as *Ambiodon concinnus*, type). Tennessee River at Florence, Ala. (Gilbert and Swain, 1884, collectors). French Broad and Cumberland Rivers, Tenn. (Jordan, 1876). Abundant in the Tennessee Basin and in the channel of the Cumberland (Jordan and Brayton, 1878, as *Haplodinotus grunniens*). Rolling Fork of Salt River near Booth, Pond Creek near Rockport, Rough Creek near Hartford, Big Barren River near Bowling Green, Green River near Greensburg, Cumberland River near Kuttawa, Tennessee River near Paducah, Obion River near Cypress, and Bayou de Chien near Moscow, Ky. (Woolman, 1892). Smith Fork near Lancaster, Tenn., and Cumberland River near mouth of Willis Creek in Cumberland County, Ky. (Kirsch, 1893). Falls of the Ohio (Evermann, 1902).

171. *Cottus ictalops* (Rafinesque). (2335.) Miller's thumb; blob.

Spring Creek near Lexington, Ky. (Rafinesque, 1820, as *Pegadictis ictalops*, type). North Fork of the Holston near Saltville, Va. (Cope, 1869, as *Uranidea carolinæ*). Powell River, Tenn. (Jordan, 1876, as *Potamocottus carolinæ*). French Broad River in Madison County, N. C. (Cope, 1877a, as *Uranidea carolinæ*). Chickamauga River near Ringgold, Ga., Cave Spring Creek at Cumberland Gap, Holston and French Broad Rivers (Jordan and Brayton, 1878, as *Potamocottus meridionalis*). Cumberland River near Nashville, Tenn. (Jordan and Brayton, 1878, as *Potamocottus meridionalis*). Wolf Creek in Cocke County, Tenn., Tennessee River near Florence and Huntsville, and Clinch River at Clinton, Tenn. (Gilbert and Swain, 1884, collectors). North Fork of the Holston near Saltville, Middle Fork of the Holston near Marion and Glade Spring, South Fork of the Holston near Holstein Mills, Va., Watauga and Doe Rivers near Elizabethton, Tenn., Spring Creek at Hot Springs, and Swannanoa River near Asheville, N. C. (Jordan, 1889, as *Cottus bairdi*). Little Barren River near Osceola, Ky. (Woolman, 1892, as *Cottus bairdi*). Indian Creek near Cumberland Gap, Ball Creek near Tazewell, Tennessee River near Knoxville, Nolichucky River near Greenville, Arnwine Spring near Mount Verd, Eastaunaula and Norvel Spring Creeks near Athens, Nickajack Cave near Shellmound, Tenn., and Chickamauga Creek near Lee & Gordon's mill, Ga. (Evermann, Scovell, and Gurley, 1893, collectors; and Evermann and Hildebrand, 1916). Round Lick Creek near Watertown, Roaring River near Windle, Spring Creek at Springcreek station, and Obeyes River near Olympus, Tenn., and Little South Fork of the Cumberland near mouth of Canada Creek, Ky. (Kirsch, 1893, as *Cottus bairdi*).

NOMINAL SPECIES.

Following is a list of the nominal species of fishes, arranged in chronological order, described as new from the Cumberland and Tennessee Basins or other waters of Kentucky and Tennessee. The list shows (1) the year, (2) the authority, (3) nominal species, (4) present identification, and (5) type locality.

Year.	Authority.	Nominal species.	Present identification.	Type locality.
1818	Rafinesque	<i>Acipenser platyrhynchus</i> .	<i>Scaphirhynchus platyrhynchus</i> .	Ohio River.
1818	do.	<i>Bodianus calliurus</i> .	<i>Micropterus dolomieu</i> .	Do.
1818	do.	<i>Catostomus erythrurus</i> .	<i>Moxostoma aureolum</i> .	Do.
1818	do.	<i>Catostomus macropterus</i> .	(?)	Do.
1818	do.	<i>Catostomus duquesnei</i> .	<i>Placopharynx duquesnii</i> .	Do.
1818	do.	<i>Clupea heterurus</i> .	<i>Dorosoma cepedianum</i> .	Do.
1818	do.	<i>Clupea alosoides</i> .	<i>Hiodon alosoides</i> .	Do.
1818	do.	<i>Glossodon harengoides</i> .	<i>Hiodon tergisus</i> .	Do.
1818	do.	<i>Glossodon heterurus</i> .	do.	Do.
1818	do.	<i>Hydrargyra dinema</i> .	<i>Notropis atherinoides</i> .	Do.
1818	do.	<i>Hydrargyra notata</i> .	<i>Pimephales notatus</i> .	Do.
1818	do.	<i>Hydrargyra amblops</i> .	<i>Hybopsis amblops</i> .	Do.
1818	do.	<i>Lepisosteus fluviatilis</i> .	(?)	Do.
1818	do.	<i>Catostomus bubalus</i> .	<i>Ictiobus bubalus</i> .	Do.
1818	do.	<i>Perca salmonea</i> .	<i>Stizostedion vitreum</i> .	Do.
1818	do.	<i>Perca chrysops</i> .	<i>Roccus chrysops</i> .	Do.
1818	do.	<i>Polyodon pristin</i> .	(?)	Do.
1818	do.	<i>Polyodon folium</i> .	<i>Polyodon spathula</i> .	Do.
1818	do.	<i>Sciæna grunniens</i> .	<i>Aplodinotus grunniens</i> .	Do.
1818	do.	<i>Sciæna caprodes</i> .	<i>Percina caprodes</i> .	Do.
1818	do.	<i>Sparus cyanelus</i> .	<i>Apomotis cyanellus</i> .	Do.
1818	do.	<i>Sparus nigropunctatus</i> .	<i>Pomoxis annularis</i> .	Do.
1818	do.	<i>Silurus punctatus</i> .	<i>Ictalurus punctatus</i> .	Do.
1818	do.	<i>Silurus amblodon</i> .	<i>Leptops olivaris</i> .	Do.
1818	do.	<i>Silurus olivaris</i> .	do.	Do.
1818	do.	<i>Silurus pallidus</i> .	<i>Ictalurus punctatus</i> .	Do.
1818	do.	<i>Acipenser heptitus</i> .	<i>Acipenser rubicundus</i> .	Do.
1818a	do.	<i>Anguilla laticauda</i> .	<i>Anguilla chrisypa</i> .	Do.
1818a	do.	<i>Bodianus calliops</i> .	<i>Micropterus dolomieu</i> .	Do.
1818a	do.	<i>Catostomus amiopterus</i> .	(?)	Do.
1818a	do.	<i>Catostomus velifer</i> .	<i>Cariodes velifer</i> .	Do.
1818a	do.	<i>Catostomus amblodon</i> .	(?)	Do.
1818a	do.	<i>Cyprinus trachiaphas</i> .	(?)	Do.
1818a	do.	<i>Cyprinus fasciolaris</i> .	<i>Erimyzon sucetta oblongus</i> .	Do.
1818a	do.	<i>Clupea chrysochloris</i> .	<i>Pomolobus chrysochloris</i> .	Do.
1818a	do.	<i>Dinoctus truncatus</i> .	(?)	Do.
1818a	do.	<i>Esox vittatus</i> .	<i>Lucius lucius</i> .	Do.
1818a	do.	<i>Exoglossum argenteum</i> .	(?)	Do.
1818a	do.	<i>Esox fasciolaris</i> .	<i>Lucius vermiculatus</i> .	Do.
1818a	do.	<i>Glanis limosus</i> .	<i>Leptops olivaris</i> .	Do.
1818a	do.	<i>Glossodon chrysops</i> .	(?)	Do.
1818a	do.	<i>Lepisosteus platostomus</i> .	<i>Lepisosteus platostomus</i> .	Do.
1818a	do.	<i>Lepisosteus stenorrhynchus</i> .	(?)	Do.
1818a	do.	<i>Litholepis adamantinus</i> .	<i>Lepisosteus tristoechus</i> .	Do.
1818a	do.	<i>Olmerus albus</i> .	(?)	Do.
1818a	do.	<i>Pogostoma leucops</i> .	(?)	Do.
1818a	do.	<i>Silurus ceruleus</i> .	<i>Ictalurus punctatus</i> .	Do.
1818b	do.	<i>Exoglossum (Hypentelium) macropterus</i> .	<i>Hypentelium nigricans</i> .	Falls of the Ohio.
1818b	do.	<i>Pomoxis Annularis</i> .	<i>Pomoxis annularis</i> .	Ohio River at the Falls.
1818b	do.	<i>Sarchirus Vittatus</i> .	<i>Lepisosteus osseus</i> .	Lower parts of the Ohio.
1818c	do.	<i>Noturus flavus</i> .	<i>Noturus flavus</i> .	Ohio River at the Falls.
1819	do.	? <i>Amblodon niger</i> .	<i>Cycleptus elongatus</i> .	Ohio River.
1819	do.	<i>Amblodon bubalus</i> .	<i>Ictiobus bubalus</i> .	Do.
1819	do.	<i>Etheostoma flabellaris</i> .	<i>Etheostoma flabellare</i> .	Tributaries of the Ohio.
1819	do.	<i>Lepomis macrochira</i> .	<i>Lepomis macrochirus</i> .	Ohio and Licking Rivers.
1819	do.	<i>Lepomis cyanellus</i> .	<i>Apomotis cyanellus</i> .	Ohio River.
1819	do.	<i>Noturus lutius</i> .	<i>Noturus flavus</i> .	Do.
1819	do.	<i>Notemigonus auratus</i> .	<i>Abramis crysoleucas</i> .	Falls of the Ohio.
1820	do.	<i>Silurus viscosus</i> .	<i>Leptops olivaris</i> .	Ohio River.
1820	do.	<i>Silurus lividus var. fusca-</i> <i>tus</i> .	<i>Ameiurus natalis</i> .	Do.
1820	do.	<i>Silurus argyrus var. leuco-</i> <i>optera</i> .	<i>Ictalurus punctatus</i> .	Do.
1820	do.	<i>Silurus argyrus var. lat-</i> <i>eralis</i> .	do.	Do.

Year.	Authority.	Nominal species.	Present identification.	Type locality.
1820	Rafinesque.....	<i>Silurus argyrus</i> var. <i>marginatus</i> .	<i>Ictalurus punctatus</i>	Ohio River.
1820	do.....	<i>Silurus argyrus</i> var. <i>erythroptera</i> .	do.....	Do.
1820	do.....	<i>Silurus argyrus</i>	do.....	Do.
1820	do.....	<i>Silurus argentinus</i>	do.....	Do.
1820	do.....	<i>Silurus maculatus</i>	do.....	Do.
1820	do.....	<i>Silurus melas</i>	<i>Ameiurus melas</i>	Do.
1820a	do.....	<i>Accipenser serotimus</i>	<i>Acipenser rubicundus</i>	Ohio and Kentucky Rivers.
1820a	do.....	<i>Accipenser ohioensis</i>	do.....	Ohio River as far up as Pittsburgh.
1820a	do.....	<i>Accipenser lagenarius</i>	do.....	Ohio River.
1820a	do.....	<i>Anguilla atherina</i>	<i>Anguilla chrysops</i>	Tennessee and Cumberland Rivers, etc.
1820a	do.....	<i>Anguilla xanthomelas</i>	do.....	Ohio River as far up as Pittsburgh.
1820a	do.....	<i>Anguilla lutea</i>	do.....	Cumberland, Green, and Licking Rivers, etc.
1820a	do.....	<i>Catostomus flexuosus</i>	<i>Catostomus commersonii</i>	Most common species in Kentucky; in all the streams and ponds.
1820a	do.....	<i>Catostomus melanotus</i>	<i>Campostoma anomalum</i>	Falls of the Ohio.
1820a	do.....	<i>Catostomus melanops</i>	<i>Minytrema melanops</i>	Do.
1820a	do.....	<i>Catostomus xanthopus</i>	<i>Hypentelium nigricans</i>	Below the Falls of the Ohio.
1820a	do.....	<i>Catostomus carpio</i>	<i>Carpiodes carpio</i>	Falls of the Ohio.
1820a	do.....	<i>Catostomus anisurus</i>	<i>Moxostoma anisurum</i>	All over the Ohio and the larger streams as far as Pittsburgh.
1820a	do.....	<i>Cycleptus nigrescens</i>	<i>Cycleptus elongatus</i>	Ohio River as far as Pittsburgh.
1820a	do.....	<i>Calliurus Punctulatus</i>	<i>Micropterus dolomieu</i>	Falls of the Ohio.
1820a	do.....	<i>Dorosoma notata</i>	<i>Dorosoma cepedianum</i>	Do.
1820a	do.....	<i>Etheostoma Blennioides</i>	<i>Diplesion blennioides</i>	Ohio River.
1820a	do.....	<i>Etheostoma nigra</i>	<i>Boleosoma nigrum</i>	Green River.
1820a	do.....	<i>Etheostoma flabellata</i>	<i>Etheostoma flabellare</i>	Falls of the Ohio.
1820a	do.....	<i>Etheostoma callura</i>	<i>Micropterus dolomieu</i>	Ohio and Salt Rivers, etc.
1820a	do.....	<i>Etheostoma fontinalis</i>	<i>Etheostoma flabellare</i>	Springs and caves near Lexington, Ky.
1820a	do.....	<i>Esox salmoneus</i>	<i>Lucius ohioensis</i>	Ohio River.
1820a	do.....	<i>Hyodon vernalis</i>	<i>Hyodon tergisus</i>	All over the Ohio and even at Pittsburgh.
1820a	do.....	<i>Hyodon amphiodon</i>	<i>Hyodon alosoides</i>	Lower parts of the Ohio.
1820a	do.....	<i>Ictalurus melanops</i>	<i>Apomotis cyanellus</i>	Tributary streams of the Ohio, Kentucky, and Licking Rivers.
1820a	do.....	<i>Icthelis enythrops</i>	<i>Ambloplites rupestris</i>	No stream mentioned.
1820a	do.....	<i>Icthelis megalotis</i>	<i>Lepomis megalotis</i>	Kentucky, Licking, and Sandy Rivers, etc.
1820a	do.....	<i>Lepisosteus ferox</i>	<i>Lepisosteus tristoechus</i>	Lower parts of the Ohio.
1820a	do.....	<i>Lepisosteus oxyurus</i>	<i>Lepisosteus osseus</i>	Ohio River.
1820a	do.....	<i>Lepisosteus albus</i>	<i>Lepisosteus platostomus</i>	Do.
1820a	do.....	<i>Lepomis pallida</i>	<i>Micropterus salmoides</i>	Do.
1820a	do.....	<i>Lepomis trifasciata</i>	<i>Micropterus dolomieu</i>	Ohio River and many other streams.
1820a	do.....	<i>Lepomis flexuolaris</i>	do.....	Ohio and tributaries.
1820a	do.....	<i>Lepomis Salmonea</i>	do.....	Ohio, Kentucky, Green, and Licking Rivers, etc.
1820a	do.....	<i>Lepomis notata</i>	do.....	Do.
1820a	do.....	<i>Lepomis icheloides</i>	<i>Ambloplites rupestris</i>	Kentucky River and tributary streams.
1820a	do.....	<i>Luxilus or Chrosomus erythrogaster</i>	<i>Chrosomus erythrogaster</i>	Kentucky River.
1820a	do.....	<i>Luxilus chrysocephalus</i>	<i>Notropis cornutus</i>	Ohio, Kentucky, Cumberland, and Green Rivers, etc.
1820a	do.....	<i>Luxilus Kentuckiensis</i>	<i>Hybopsis kentuckiensis</i>	No stream mentioned.
1820a	do.....	<i>Luxilus interruptus</i>	<i>Notropis cornutus</i>	Ohio River.
1820a	do.....	<i>Minnilus microstomus</i>	? <i>Notropis blennius</i>	Kentucky River.
1820a	do.....	<i>Pimephales promelas</i>	<i>Pimephales promelas</i>	Pond near Lexington, Ky.
1820a	do.....	<i>Petromyzon nigrum</i>	<i>Lampetra wilderi</i>	Ohio River as far up as Pittsburgh.
1820a	do.....	<i>Rutilus plargyrus</i>	<i>Notropis cornutus</i>	Streams of Kentucky.
1820a	do.....	<i>Rutilus Amblops</i>	<i>Hybopsis amblops</i>	Falls of the Ohio.
1820a	do.....	<i>Rutilus melanurus</i>	<i>Moxostoma aureolum</i>	Ohio River.
1820a	do.....	<i>Rutilus anomalus</i>	<i>Campostoma anomalum</i>	Licking River, etc.
1820a	do.....	<i>Rutilus ruber</i>	<i>Notropis umbratilis lythrus</i>	Small streams which fall into the Elkhorn and Kentucky.
1820a	do.....	<i>Semotilus dorsalis</i>	<i>Semotilus atromaculatus</i>	In the Kentucky and several other rivers.
1820a	do.....	<i>Semotilus cephalus</i>	do.....	Creeks of Kentucky, etc.
1820a	do.....	<i>Semotilus diplemia</i>	do.....	Kentucky River near Estill.
1820a	do.....	<i>Semotilus ? notatus</i>	<i>Fundulus notatus</i>	Cumberland River and Little River, a branch of it.
1832	do.....	<i>Pimeiodus lutescens</i>	<i>Ictalurus punctatus</i>	Tennessee River.
1845	Storer.....	<i>Pecilia olivacea</i>	<i>Fundulus notatus</i>	Tennessee River at Florence, Ala.
1845	do.....	<i>Etheostoma tessellata</i>	<i>Etheostoma tessellatum</i>	Do.
1845	do.....	<i>Leuciscus obesus</i>	<i>Notropis cornutus</i>	Do.
1845	do.....	<i>Etheostoma cinerea</i>	<i>Etheostoma cinereum</i>	Do.
1845	Agassiz.....	<i>Hybopsis gracilis</i>	<i>Hybopsis amblops</i>	Tennessee River near Huntsville, Ala.
1854	do.....	<i>Rhinichthys obtusus</i>	<i>Rhinichthys atronasus</i>	Do.
1854	do.....	<i>Carpiodes Urus</i>	<i>Ictiobus urus</i>	Do.
1854	do.....	<i>Esox crassus</i>	<i>Lucius reticulatus</i>	Do.
1854	do.....	<i>Amblodon concinnus</i>	<i>Aplodinotus grunniens</i>	Do.
1854	do.....	<i>Hyostoma Newmanii</i>	<i>Diplesion blennioides</i>	Do.
1854	do.....	<i>Pomotis pallidus</i>	<i>Eupomotis pallidus</i>	Do.
1854	do.....	<i>Pomotis bombifrons</i>	<i>Lepomis megalotis</i>	Do.
1854	do.....	<i>Pomotis obscurus</i>	<i>Lepomis pallidus</i>	Do.
1854	do.....	<i>Pomotis notatus</i>	<i>Eupomotis heros</i>	Do.
1854	do.....	<i>Pomotis inscriptus</i>	<i>Lepomis megalotis</i>	Do.
1854	do.....	<i>Pomotis sanguinolentus</i>	do.....	Do.
1854	do.....	<i>Crystes nobilis</i>	<i>Micropterus salmoides</i>	Do.

Year.	Authority.	Nominal species.	Present identification.	Type locality.
1867	Cope.....	<i>Phenacobius uranops</i>	<i>Phenacobius uranops</i>	Holston River near Saltville, Va.
1867a	do.....	<i>Photogenis leuciodus</i>	<i>Notropis leuciodus</i>	"Tributaries of the Holston in situations similar to those where <i>P. telescopus</i> occurs."
1867a	do.....	<i>Photogenis telescopus</i>	<i>Notropis telescopus</i>	"Very abundant in all the rapid streams tributary to the Holston River in Virginia. It is very rare in the river itself."
1867a	do.....	<i>Hypsilepis galacturus</i>	<i>Notropis galacturus</i>	"Abundant in the tributaries of the Holston River in Virginia."
1867a	do.....	<i>Hypsilepis coccogenis</i>	<i>Notropis coccogenis</i>	"It occurs in abundance in the clear and often rapid creeks that flow into the north and middle forks of the Holston River in Virginia. Taken in the ninth month."
1869	do.....	<i>Cottogaster aurantiacus</i> ...	<i>Hypohomus aurantiacus</i> ...	North Fork of Holston River near Saltville, Va.
1869	do.....	<i>Pœciliichthys zonalis</i>	<i>Etheostoma zonale</i>	Do.
1869	do.....	<i>Hystostoma blennioperca</i> ...	<i>Diplesion blennioides</i>	"Common in the tributaries of the Kanawha and Holston."
1869	do.....	<i>Hystostoma simoterum</i>	<i>Ulocentra simoterum</i>	"One of the most abundant in the Holston River and its tributaries."
1869	do.....	<i>Ceraticthys hyalinus</i>	<i>Hybopsis amblops</i>	"Abundant in the tributaries of the Holston."
1869	do.....	<i>Ceraticthys monacus</i>	<i>Hybopsis monacus</i>	"Singly or in pairs in the channel of the Holston River, in Washington County, Va."
1869	do.....	<i>Hybopsis spectrunculus</i> ...	<i>Notropis spectrunculus</i> ...	"Abundant in Bear Creek, a tributary of the middle fork of the Holston River, in Smyth County, Va."
1869	do.....	<i>Hybopsis rubricroceus</i>	<i>Notropis rubricroceus</i>	"Bear Creek, a tributary of the middle fork of the Holston, also near mouth of Tumbling Fork of the North Fork of the Holston."
1869	do.....	<i>Hybopsis lacertosus</i>	<i>Notropis lacertosus</i>	Bear Creek, a tributary of the middle fork of the Holston River, Va.
1869	do.....	<i>Alburnellus micropteryx</i> ...	<i>Notropis micropteryx</i>	Holston River.
1870	do.....	<i>Pœciliichthys rufilineatus</i> ...	<i>Etheostoma rufilineatum</i> ...	Warm Springs Creek in Madison County, N. C.
1870	do.....	<i>Pœciliichthys vulneratus</i> ...	<i>Etheostoma vulneratum</i> ...	Do.
1870	do.....	<i>Pœciliichthys camurus</i>	<i>Etheostoma camurum</i>	Headwaters of the Cumberland in Tennessee.
1870	do.....	<i>Pœciliichthys sanguifluus</i> ...	<i>Etheostoma maculatum</i> ...	Headwaters of South Fork of the Cumberland in Tennessee.
1870	Duméril.....	<i>Acipenser (Antaceus) Cincinnati</i>	<i>Acipenser rubicundus</i>	Ohio River at Cincinnati.
1870	do.....	<i>Acipenser (Huso) Rafinesquii</i>	do.....	Ohio River.
1870	do.....	<i>Acipenser (Huso) paranasimos</i>	do.....	Tennessee River near Huntsville, Ala.
1872	Putnam.....	<i>Chologaster agassizii</i>	<i>Chologaster agassizii</i>	Well in Lebanon, Tenn.
1877	Jordan.....	<i>Noturus cleutherus</i>	<i>Schilbeodes cleutherus</i>	Big Pigeon River, Newport, Tenn.
1877a	do.....	<i>Hyodon selenops</i>	<i>Hyodon selenops</i>	Tennessee River at Chattanooga, and Cumberland River.
1877a	do.....	<i>Etheostoma squamiceps</i> ...	<i>Etheostoma squamiceps</i> ...	Russellville, Ky.
1877a	do.....	<i>Ariana atripinnis</i>	<i>Ulocentra simotera</i>	Tributary of Cumberland River near Nashville, Tenn.
1877	Jordan and Brayton.....	<i>Lagochila lacera</i>	<i>Lagochila lacera</i>	Chickamauga Creek near Ringgold, Ga.
1878	Jordan.....	<i>Pœciliichthys jessiae</i> Jordan and Brayton.....	<i>Etheostoma jessiae</i>	Do.
1878	do.....	<i>Phoxinus flammeus</i>	<i>Leuciscus flammeus</i>	Elk River at Estill Springs.
1878	do.....	<i>Gila estor</i>	<i>Leuciscus vandoisulus</i>	Elk River at Estill Springs, and Stone River at Murfreesboro, Tenn.
1883	Jordan and Swain.....	<i>Etheostoma cumberlandicum</i>	<i>Etheostoma flabellare cumberlandicum</i>	"Excessively abundant in all the small streams of the Cumberland Mountains. Numerous examples were taken in Wolf Creek, Briar Creek, etc. Others seen in Clear Fork, Yellow Creek, Gap Creek, etc."
1883	do.....	<i>Pœciliichthys sagitta</i>	<i>Etheostoma sagitta</i>	Wolf Creek, Whitley County, Ky.
1883	do.....	<i>Boleosoma susanæ</i>	<i>Boleosoma susanæ</i>	"Abundant in the tributaries of the Clear Fork of the Cumberland. Most of the numerous types from Wolf Creek."
1887	Gilbert and Swain.....	<i>Etheostoma (Etheostoma) tuscumbia</i>	<i>Etheostoma tuscumbia</i>	Spring Creek at Tuscumbia, Ala.
1887	do.....	<i>Etheostoma (Etheostoma) luteovinctum</i>	<i>Etheostoma luteovinctum</i>	Stone River near Nashville, Tenn.
1887	do.....	<i>Etheostoma (Rhothœca) blennius</i>	<i>Etheostoma blennius</i>	Cox and Shoal Creeks near Florence, Ala.
1887	Gilbert.....	<i>Etheostoma nianguæ spilotum</i>	<i>Etheostoma spilotum</i>	Sturgeon Creek near Travelers Rest, Owsley County, Ky.
1887	do.....	<i>Etheostoma (Etheostoma) squamatus</i>	<i>Etheostoma squamatus</i>	French Broad River at the mouth of Wolf Creek, Tenn.
1888a	Jordan.....	<i>Etheostoma swannanoa</i> Jordan and Evermann.....	<i>Etheostoma swannanoa</i>	South Fork of the Swannanoa at Black Mountain, N. C.; South Fork of the Holston at Holstein Mills, Va.; and Middle Fork of the Holston at Marion, Va.

Year.	Authority.	Nominal species.	Present identification.	Type locality.
1888a	Jordan	<i>Hybopsis watauga</i> Jordan and Evermann.	<i>Hybopsis watauga</i>	Watauga River near Elizabethton, Tenn., and North Fork of Holston River at Saltville, Va.
1889	Henshall	<i>Etheostoma formosa</i>	<i>Etheostoma ceruleum</i>	Small tributary of Tennessee River near Whiteside, Tenn.
1889	.....do.....	<i>Etheostoma duryi</i>	<i>Ulocentra simotera</i>	Do.
1891	Gilbert	<i>Notropis umbratilis fasciolaris</i> .	<i>Notropis umbratilis fasciolaris</i> .	Pin-hook and Spring Creeks near Huntsville, Ala.; Veta Wright Creek near Decatur, Ala.; Mallett Creek near Hillsbor, Ala.; Big Nance Creek at Courtland, Ala.; Spring Creek at Tusculmbia, Ala.; and Cypress Creek at Florence, Ala.
1892	Kirsch	<i>Etheostoma obeyense</i>	<i>Etheostoma obeyense</i>	Indian, Spring, and Smith Creeks and Albany Branch, Clinton County, Ky.
1896	Jordan and Evermann.	<i>Ulocentra meadiæ</i>	<i>Ulocentra meadiæ</i>	Indian Creek near Cumberland Gap, Tenn.
1896	.....do.....	<i>Ulocentra gilberti</i> Evermann and Thoburn.	<i>Ulocentra gilberti</i>	Clinch River at Walkers Ford, Tenn.
1896	.....do.....	<i>Catostomus rhotæceus</i> Evermann and Thoburn.	<i>Catostomus rhotæceus</i>	Probably French Broad River at Wolf Creek, Tenn.
1902	Evermann	<i>Alosa ohiensis</i>	<i>Alosa ohiensis</i>	Falls of the Ohio.

The above table shows that 191 nominal species of fishes have been described from the Cumberland and Tennessee River Basins and other waters in Kentucky and Tennessee. Of this number 77 are at present regarded as good species. Thus, of the total of 171 species admitted as constituting the fish fauna of Kentucky and Tennessee, only 77 were originally described from those waters and 94 from other waters.

The following table gives (1) the names of the ichthyologists who have described supposedly new species from Kentucky and Tennessee, (2) the number of species described by each, (3) the number of his nominal species now accepted as good, and (4) the number not accepted:

Authority.	Number of species described from Kentucky and Tennessee.	Number accepted as good species.	Number regarded as synonyms.
Rafinesque	125	34	91
Cope	19	16	3
Agassiz	13	2	11
Jordan	6	4	2
Storer	4	2	2
Jordan and Evermann	4	4	0
Duméril	3	0	3
Jordan and Swain	3	3	0
Gilbert	3	3	0
Gilbert and Swain	3	0	0
Henshall	2	3	2
Putnam	1	0	0
Jordan and Brayton	2	1	0
Kirsch	1	2	0
Evermann and Thoburn	1	1	0
Evermann	1	1	0
Total	191	77	114

FISHES OF KENTUCKY AND TENNESSEE, BY PRINCIPAL RIVER SYSTEMS.

Names of species.	Lower Tennessee Basin.	Upper Tennessee Basin.	Lower Cumberland Basin.	Upper Cumberland Basin.	Green River Basin.	Salt River Basin.	Kentucky River Basin.	Licking River Basin.	Little Sandy River Basin.	Big Sandy River Basin.	Obion River Basin.	Bayou de Chien.	Recorded only from the Ohio River in italics.
<i>Ichthyomyzon concolor</i>		X											
<i>Lampetra wilderi</i>													X
<i>Polyodon spatula</i>	X	X	X	X									X
<i>Acipenser rubicundus</i>													X
<i>Scaphirhynchus platorhynchus</i>													X
<i>Lepisosteus osseus</i>	X	X	X	X	X			X	X		X		X
<i>Lepisosteus platostomus</i>	X	X	X	X									X
<i>Lepisosteus tristoechus</i>													X
<i>Amia calva</i>													X
<i>Ictalurus furcatus</i>		X	X	X									X
<i>Ictalurus punctatus</i>	X	X	X	X	X	X	X	X	X		X	X	X
<i>Ictalurus anguilla</i>													X
<i>Ameiurus lacustris</i>		X	X	X	X	X	X	X	X				X
<i>Ameiurus natalis</i>												X	X
<i>Ameiurus nebulosus</i>												X	X
<i>Ameiurus melas</i>												X	X
<i>Leptops olivaris</i>	X	X	X	X	X	X	X	X	X				X
<i>Noturus flavus</i>		X	X	X	X	X	X	X	X				X
<i>Schilbeodes gyrynus</i>												X	X
<i>Schilbeodes eleutherus</i>		X	X	X	X	X	X	X	X			X	X
<i>Schilbeodes miurus</i>	X	X	X	X	X	X	X	X	X				X
<i>Ictiobus cyprinella</i>		X	X	X	X	X	X	X	X				X
<i>Ictiobus urus</i>													X
<i>Ictiobus bubalus</i>	X	X	X	X	X	X	X	X	X			X	X
<i>Carpiodes carpio</i>	X	X	X	X	X	X	X	X	X				X
<i>Carpiodes difformis</i>													X
<i>Carpiodes velifer</i>	X	X	X	X	X	X	X	X	X				X
<i>Cycleptus elongatus</i>													X
<i>Catostomus rhothoecus</i>		X	X	X	X	X	X	X	X				X
<i>Catostomus commersonii</i>	X	X	X	X	X	X	X	X	X				X
<i>Hypentelium nigricans</i>	X	X	X	X	X	X	X	X	X				X
<i>Erimyzon sucetta</i>	X	X	X	X	X	X	X	X	X				X
<i>Erimyzon sucetta oblongus</i>													X
<i>Minytrema melanops</i>	X	X	X	X	X	X	X	X	X				X
<i>Moxostoma anisurum</i>		X	X	X	X	X	X	X	X				X
<i>Moxostoma aureolum</i>	X	X	X	X	X	X	X	X	X				X
<i>Moxostoma breviceps</i>													X
<i>Placopharynx duquesnii</i>		X	X	X	X	X	X	X	X				X
<i>Lagochila lacera</i>	X	X	X	X	X	X	X	X	X				X
<i>Camptostoma anomalum</i>	X	X	X	X	X	X	X	X	X				X
<i>Chrosomus erythrogaster</i>	X	X	X	X	X	X	X	X	X				X
<i>Hybognathus nuchale</i>	X	X	X	X	X	X	X	X	X				X
<i>Pimephales promelas</i>		X	X	X	X	X	X	X	X				X
<i>Pimephales notatus</i>	X	X	X	X	X	X	X	X	X				X
<i>Semotilus atromaculatus</i>		X	X	X	X	X	X	X	X				X
<i>Leuciscus vandoulsulus</i>	X	X	X	X	X	X	X	X	X				X
<i>Leuciscus flammeus</i>		X	X	X	X	X	X	X	X				X
<i>Opsopœodus emiliae</i>													X
<i>Opsopœodus bollmani</i>											X		X
<i>Abramis crysoleucas</i>	X	X	X	X	X	X	X	X	X				X
<i>Cliola vigilax</i>													X
<i>Notropis blennioides</i>	X	X	X	X	X	X	X	X	X				X
<i>Notropis spectrunculus</i>		X	X	X	X	X	X	X	X				X
<i>Notropis shumardi</i>													X
<i>Notropis whipplii</i>	X	X	X	X	X	X	X	X	X				X
<i>Notropis galacturus</i>		X	X	X	X	X	X	X	X				X
<i>Notropis cornutus</i>	X	X	X	X	X	X	X	X	X				X
<i>Notropis lacertoides</i>		X	X	X	X	X	X	X	X				X
<i>Notropis coccoensis</i>		X	X	X	X	X	X	X	X				X
<i>Notropis zonatus</i>		X	X	X	X	X	X	X	X				X
<i>Notropis rubricroceus</i>		X	X	X	X	X	X	X	X				X
<i>Notropis ariommus</i>		X	X	X	X	X	X	X	X				X
<i>Notropis jejunus</i>		X	X	X	X	X	X	X	X				X
<i>Notropis leuciodus</i>		X	X	X	X	X	X	X	X				X
<i>Notropis telescopus</i>	X	X	X	X	X	X	X	X	X				X
<i>Notropis stilbius</i>		X	X	X	X	X	X	X	X				X
<i>Notropis atherinoides</i>		X	X	X	X	X	X	X	X				X
<i>Notropis arge</i>		X	X	X	X	X	X	X	X				X
<i>Notropis dilectus</i>		X	X	X	X	X	X	X	X				X
<i>Notropis photogenis</i>		X	X	X	X	X	X	X	X				X
<i>Notropis micropteryx</i>		X	X	X	X	X	X	X	X				X
<i>Notropis liris</i>	X	X	X	X	X	X	X	X	X				X
<i>Notropis umbratilis lythrurus</i>		X	X	X	X	X	X	X	X		X		X
<i>Notropis umbratilis fasciolaris</i>		X	X	X	X	X	X	X	X				X
<i>Ericymba buccata</i>			X	X		X	X	X	X				X

FISHES OF KENTUCKY AND TENNESSEE, BY PRINCIPAL RIVER SYSTEMS—Continued.

Names of species.	Lower Tennessee Basin.	Upper Tennessee Basin.	Lower Cumberland Basin.	Upper Cumberland Basin.	Green River Basin.	Salt River Basin.	Kentucky River Basin.	Licking River Basin.	Little Sandy River Basin.	Big Sandy River Basin.	Obion River Basin.	Bayou de Chien.	Recorded only from the Ohio River in italics.
<i>Phenacobius mirabilis</i>		X		X									
<i>Phenacobius uranops</i>	X		X		X								
<i>Rhinichthys cataractæ</i>		X											
<i>Rhinichthys atronasmus</i>		X		X									
<i>Hybopsis hyostomus</i>	X	X	X		X			X		X			
<i>Hybopsis monacus</i>	X	X											
<i>Hybopsis dissimilis</i>	X	X	X										
<i>Hybopsis watauga</i>		X	X		X								
<i>Hybopsis amblops</i>		X	X	X	X	X	X	X		X			
<i>Hybopsis storerianus</i>	X	X	X	X	X	X			X			X	
<i>Hybopsis kentuckiensis</i>	X	X	X	X	X	X	X	X		X		X	X
<i>Anguilla chrysypa</i>			X	X	X			X		X		X	
<i>Hiodon alosoides</i>			X	X		X							X
<i>Hiodon tergisus</i>				X									X
<i>Hiodon selenops</i>				X									X
<i>Dorosoma cepedianum</i>	X		X		X	X			X	X	X	X	X
<i>Pomolobus chrysochloris</i>	X		X		X	X			X				X
<i>Salvelinus fontinalis</i>		X											
<i>Lucius vermiculatus</i>		X						X			X	X	X
<i>Lucius lucius</i>													X
<i>Fundulus catenatus</i>			X		X								
<i>Fundulus notatus</i>		X	X	X	X	X					X	X	
<i>Gambusia affinis</i>			X					X			X	X	
<i>Typhlichthys subterraneus</i>		X		X	X								
<i>Chologaster agassizii</i>			X		X								
<i>Amblyopsis speleus</i>					X								
<i>Aphredoderus sayanus</i>		X					X	X		X			
<i>Labidesthes sicculus</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Pomoxis annularis</i>		X	X	X	X				X		X	X	X
<i>Pomoxis sparoides</i>			X	X	X				X		X	X	X
<i>Centrarchus macropterus</i> ^a			X	X	X	X	X	X	X	X	X	X	X
<i>Ambloplites rupestris</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Chenobryttus gulosus</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Apomotis cyanellus</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Lepomis auritus</i> ^b			X	X	X	X	X	X	X	X	X	X	X
<i>Lepomis garmani</i>			X	X	X	X	X	X	X	X	X	X	X
<i>Lepomis megalotis</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Lepomis macrochirus</i>			X	X	X	X	X	X	X	X	X	X	X
<i>Lepomis pallidus</i>	X		X	X	X	X	X	X	X	X	X	X	X
<i>Eupomotis pallidus</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Eupomotis heros</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Micropterus dolomieu</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Micropterus salmoides</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Stizostedion vitreum</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Stizostedion canadense</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Percina caprodes</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Hadropterus phoxocephalus</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Hadropterus macrocephalus</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Hadropterus maculatus</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Hadropterus aspro</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Hadropterus ouachitæ</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Hadropterus evides</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Hadropterus scierus</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Hypohomus squamatus</i>		X											
<i>Hypohomus aurantiacus</i>		X											
<i>Hypohomus cymatotaenia</i>		X			X								
<i>Hypohomus pilotus</i>		X					X						
<i>Cottogaster copelandi</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Cottogaster shumardi</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Ulocentra meadiæ</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Ulocentra stigmæa</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Ulocentra gilberti</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Ulocentra veracunda</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Ulocentra histrio</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Ulocentra simotera</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Diplesion bleennioides</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Boleosoma nigrum</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Boleosoma susanæ</i>	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Crystallaria asprella</i>					X								X
<i>Ammocrypta pellucida</i>		X	X	X	X	X	X	X	X	X	X	X	X
<i>Etheostoma variatum</i>								X					X
<i>Etheostoma swannanoa</i>													X
<i>Etheostoma blennioides</i>		X											X

^a Recorded only from Mayfield Creek near Hickory Grove, Ky. Identification doubtful.

^b Rivers, creeks, and ponds of Kentucky (Rafinesque).

FISHES OF KENTUCKY AND TENNESSEE, BY PRINCIPAL RIVER SYSTEMS—Continued.

Names of species.	Lower Tennessee Basin.	Upper Tennessee Basin.	Lower Cumberland Basin.	Upper Cumberland Basin.	Green River Basin.	Salt River Basin.	Kentucky River Basin.	Licking River Basin.	Little Sandy River Basin.	Big Sandy River Basin.	Obion River Basin.	Bayou de Chien.	Recorded only from the Ohio River in italics.
<i>Etheostoma rupestre</i>		×											
<i>Etheostoma zonale</i>		×											
<i>Etheostoma camurum</i>		×	×	×	×								
<i>Etheostoma vulneratum</i>		×											
<i>Etheostoma maculatum</i>		×	×	×	×								
<i>Etheostoma cinereum</i>		×	×										
<i>Etheostoma tessellatum</i>		×	×										
<i>Etheostoma rufilineatum</i>		×	×										
<i>Etheostoma sagitta</i>		×		×									
<i>Etheostoma jessiae</i>		×											
<i>Etheostoma luteovinctum</i>		×	×										
<i>Etheostoma œruleum</i>	×	×	×	×	×	×	×	×		×			
<i>Etheostoma obeyense</i>		×	×	×	×								
<i>Etheostoma virgatum</i>		×	×	×	×								
<i>Etheostoma squamiceps</i>		×	×	×	×								
<i>Etheostoma flabellare</i>		×	×	×	×		×	×		×			
<i>Etheostoma flabellare cumberlandicum</i>			×	×	×		×	×		×			×
<i>Psychromaster tuscumbia</i>		×											
<i>Boleichthys fusiforme</i>												×	
<i>Microperca punctulata</i>													
<i>Roccus chrysops</i>	×												
<i>Aplodinotus grunniens</i>	×	×	×		×	×	×				×	×	×
<i>Cottus ictalops</i>	×	×	×		×								×
Total	56	113	94	68	79	37	50	35	35	41	31	34	50